

# Tailor-made drive technology

Spur gearboxes and actuators



## A FAMILY-OWNED AND HIGHLY INNOVATIVE SUPPLIER OF CUSTOMISED SOLUTIONS

We offer both standardised products and customised solutions and services for mechatronics, electronics and software. With our own development department (electronics/construction) and a remarkable depth of production expertise, we are able to manufacture a wide range of variants for our customers. A strong quality assurance programme and lean processes have made us a highly professional partner with impressive performance in quality, costs and punctuality. Our quality management system is certified in accordance with **ISO 9001:2015**. We accept our environmental responsibilities in all our processes and corporate decisions – our environmental management system is also certified in accordance with **ISO 14001:2015**.

Long-standing relationships bind us closely to our customers, our approx. 130 employees, the location in Kirchzarten and our suppliers.



## HALSTRUP-WALCHER: SPECIALISTS IN 4 SECTORS

### MEASUREMENT TECHNOLOGY



You need to control the pressure in your cleanroom to keep contaminated air from entering. You need a display panel that shows you relevant physical/chemical parameters at a glance. You need to monitor an HVAC air filter or fan. Or you need to maintain overpressure or vacuum in one of your machines.

halstrup-walcher supplies instruments for high precision applications in the area of pressure measurement technology: Pressure transmitters, calibration devices and digital manometers for stationary or mobile use.

### POSITIONING SYSTEMS



As a manufacturer of machine tools, your customers expect you to supply highly flexible solutions with minimal retooling times. Format changes should be performed automatically, with highest precision and as quickly as possible. And you want to be able to offer your customer optimum availability of the machine – supported by condition monitoring for the components.

Positioning systems from halstrup-walcher include motor, gear, absolute encoder, the motor control system with a choice of 10 different bus communications on-board along with a wide variety of designs and performance characteristics.

### TAILOR-MADE DRIVE SOLUTIONS



You need to make parts move, linear or rotary. Optimised for the existing construction space and with a sharp eye on the costs. With a constantly high level of precision. With or without housing. As a motor/gearbox combination. Regulated or with a control system or as a purely mechanical solution. With analog or digital communication.

halstrup-walcher offers solutions covering every aspect of spur gearboxes and actuators. We develop mechanical designs, electronics and all the relevant stages of the manufacturing process in-house.

### SERVICES



You have an application in drive technology, mechatronics or sensor systems, but can't find a suitable product.

halstrup-walcher develops and designs the solution you need. Even in small batch numbers.

You need DAkkS or ISO calibration for your measuring devices so that you can be sure they are reliable.

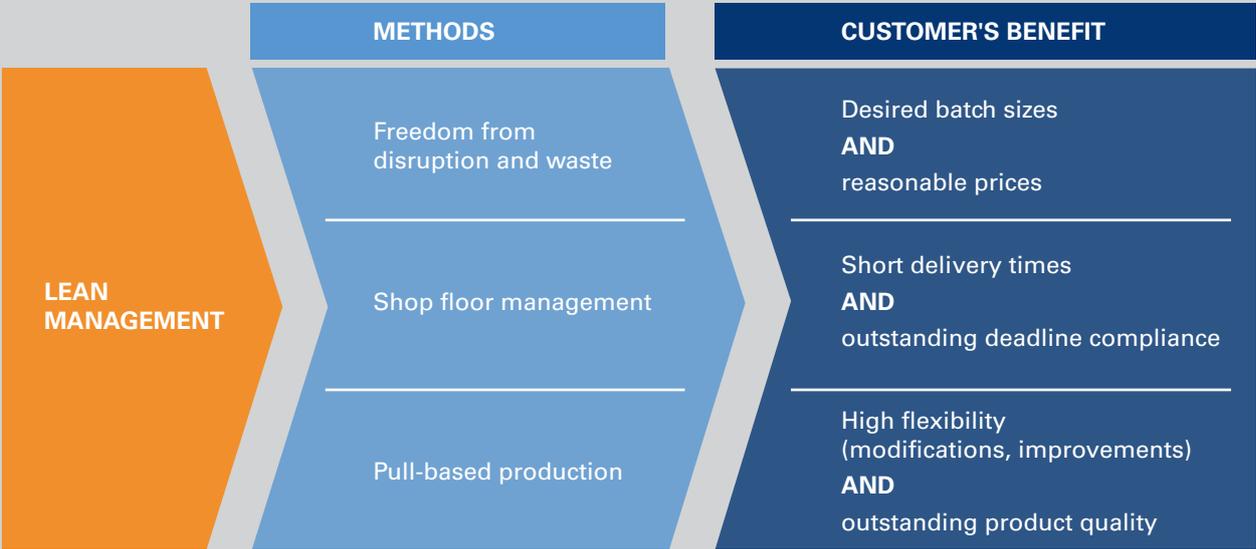
halstrup-walcher runs 2 accredited laboratories for DAkkS calibrations from the variables pressure and flow rate.

# LEAN MANAGEMENT AT HALSTRUP-WALCHER

## Focus on the customer and optimised internal processes

A number of years ago, business theorists spoke of a "magic triangle" of quality (Q), costs (C) and punctuality (P). These three factors were considered magical because any measures for improvement could benefit no more than two of them at any time – and these gains could only be obtained at the expense of the third. With the help of lean management, halstrup-walcher has succeeded in breaking the spell of this *magic triangle*. Faults, disruptions and waste are eliminated systematically from all relevant processes. This liberates the whole team to concentrate fully on the real needs of our customers.

*Shop floor management* has also brought previously unimaginable successes. Employee consultations take place in each department every working day. These are forums for discussion of current issues. Measures for eliminating these issues immediately and permanently are discussed and agreed at follow-up meetings in the company. These take into account all the relevant information. Everyone contributes, no problem is ignored. Solutions to the problems are implemented without delay. It is a culture that has won the hearts and minds of both our staff and our customers. halstrup-walcher has now begun *exporting* its insights into lean management and offers these as a service to medium-sized enterprises.



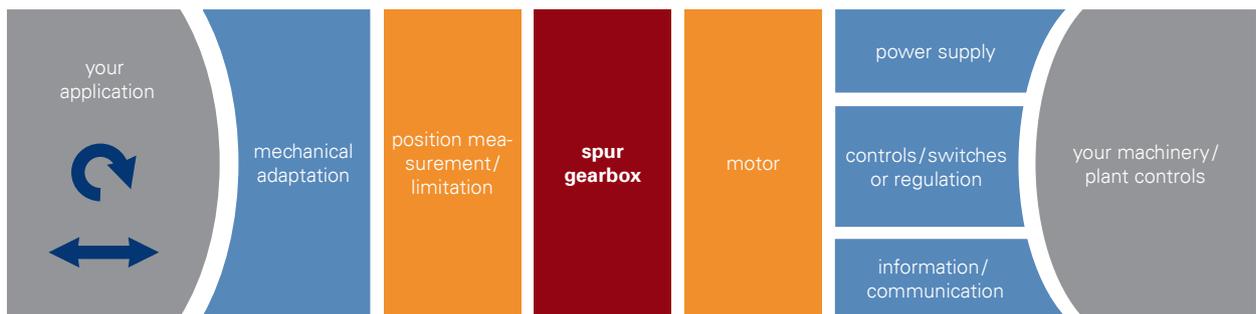
# THE RIGHT DRIVE

for your application

# FROM SINGLE GEARBOXES TO PERFECTLY TUNED ACTUATOR SOLUTIONS

At halstrup-walcher, we believe it is important that our drive solutions offer the optimum answer to your needs. Sometimes, we find that we have an “*off-the-peg*” spur gearbox that fits the job perfectly. Usually, however, there are a wide range of requirements that demand careful consideration. And we can almost always assist you in minimising the time and expense of integrating

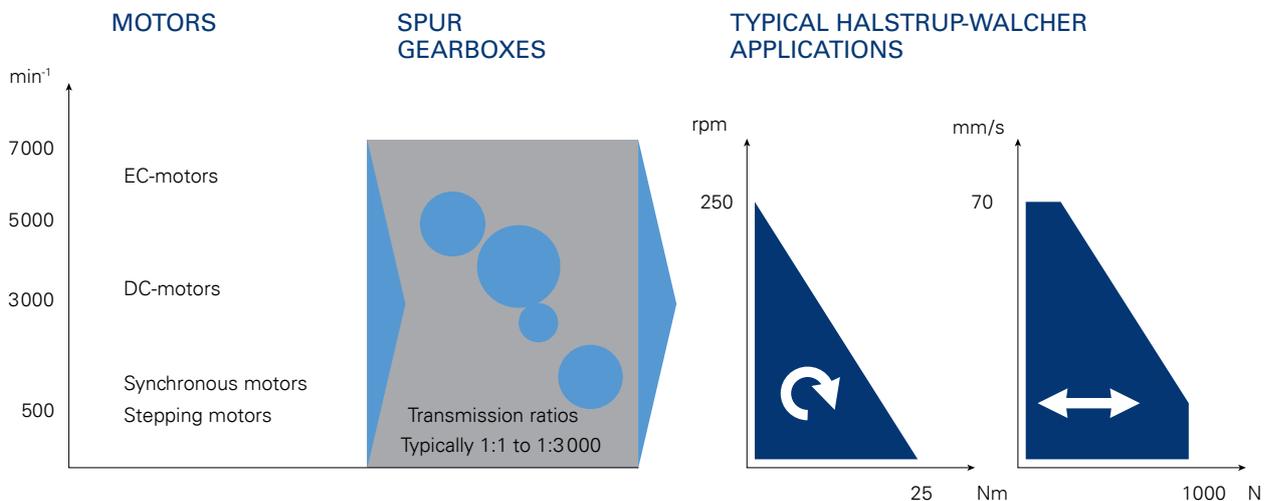
the mechanical and electrical aspects of these solutions. You will receive a complete solution from a single supplier instead of a multiple component solution that you then have to integrate yourself – a time-consuming job. The following diagram shows the major components we can combine into an optimized solution for you.



## SPEED AND TORQUE – A DUET FOR MOTOR AND GEARBOX

Spur gearboxes from halstrup-walcher are known for more than their precision and rugged design. One of their particular strengths is that they can realise **any technically feasible transmission ratio**. In practice, these are frequently transmission ratios with several decimal positions – providing the exact setting you need for your application.

Typical halstrup-walcher applications operate in the range up to 25 Nm resp. 250 rpm (*rotary*) or 1000 N resp. 70 mm/s (*linear*), see diagram. In order to provide this level of performance at the output shaft (*rotary*) or connecting rod (*linear*), halstrup-walcher combines the optimum motor with an appropriate spur gearbox.



## THE RIGHT TYPE OF MOTOR

Sometimes, the customer specifies the type of motor to be used. However, we are always happy to contribute our expertise and seek out the best possible motor for the application. Indeed, in this area, halstrup-walcher enjoys the advantage of being free to purchase motors from any manufacturer it chooses and can select the model that has produced the best results based on in-house tests (and years of experience as a supplier).

The complete drive unit, i.e. the motor on the spur gearbox, should always be assembled by halstrup-walcher. This puts the overall responsibility for the project, includ-

ing testing of the complete solution at halstrup-walcher, clearly into one set of hands. And the product can also be manufactured to the highest standards in terms of low noise emissions, lubrication and true running characteristics.

The *most commonly used types* of motor are EC-motors (brushless DC-motors, also known as BLDC-motors), stepping motors, DC-motors and (A-)synchronous motors. The following diagram shows the advantages of each type in the application.

### EC-MOTORS



EC-motors are electronically commutated and therefore require no maintenance (*no brushes*). There are no wearing parts<sup>1)</sup> even with long operating times. An EC-motor is very convenient to use but **requires a motor control driver**. The programming time and costs must therefore be considered. In the case of a blockage, the EC-motor has **power in reserve**.

### (A-)SYNCHRONOUS MOTORS



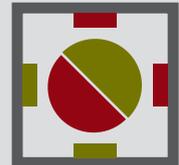
Synchronous motors are very cheap to buy. A **capacitor** is required (for start-up). The asynchronous version, the *"shaded pole motor"*, also has the advantage that it does **not heat up in the case of a blockage**. However, it is less efficient than standard synchronous motors. There are no wearing parts<sup>1)</sup>.

### DC-MOTORS



DC-motors are **easy to control**. They are powered by a simple power adapter. The direction is changed by reversing the polarity. However, brush commutation means that DC-motors are **subject to higher wear**.

### STEPPING MOTORS

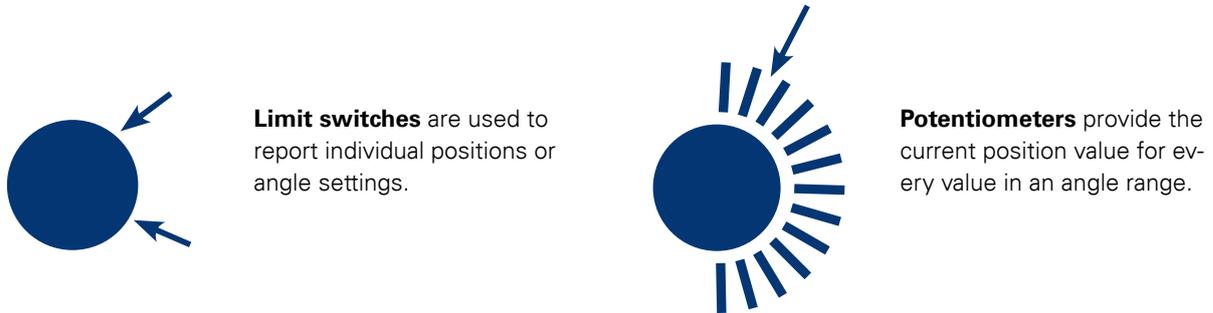


Stepping motors have no wearing parts<sup>1)</sup>. A **motor control driver is required**, which in turn involves additional programming and costs. Stepping motors are less convenient than EC-motors. This type of motor is strong at relatively low speeds (< 300 rpm). This means it is also usually **quieter than EC-motors**. However, they have no power in reserve if a blockage occurs.

<sup>1)</sup> Although bearings are wearing parts in any motor, these are oversized and therefore very durable in a high quality motor.

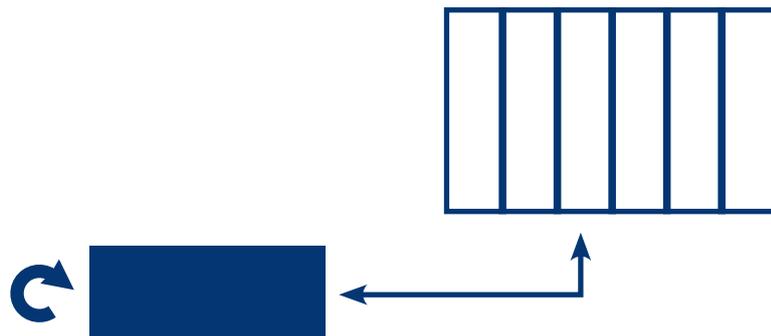
## POSITION MONITORING/POSITION REPORT

Many applications require the current position to be displayed or even corrected. To do this, halstrup-walcher uses limit switches and/or potentiometers.



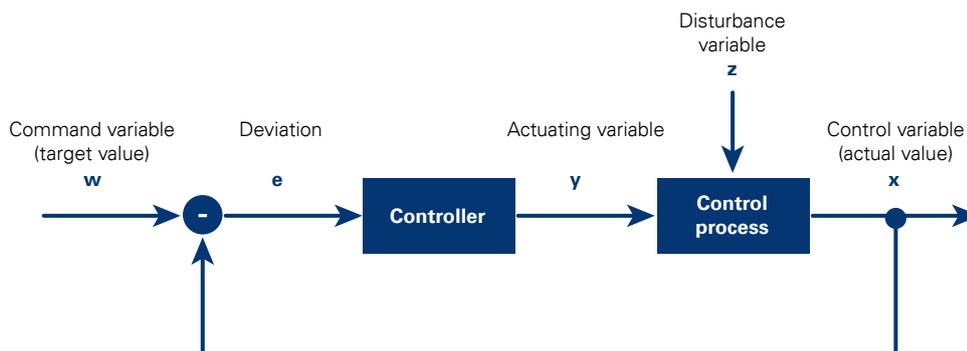
## ELECTRICAL AND COMMUNICATION ADAPTATION

halstrup-walcher also offers **precise adaptation of wiring and communication** to customer specifications. Many of these issues have already been discussed above in the sections on limit switches, potentiometers, position correction and control. However, we also offer a wide range of sophisticated options in the areas of *power supply* and *wiring* as well as *analog and digital communication*.



## POSITION CORRECTION AND CONTROL

Position correction and control tasks are usually the responsibility of a superior control unit. However, in order to reduce the load on the PLC, and also to *minimise the complexity* of the overall plant, customers often request that a **position correction and control module is integrated** into the halstrup-walcher drive itself. Position correction is usually responsible for *regulating the position*, i.e. the drive itself ensures that it takes the correct target position. Control functions, on the other hand, receive and execute movement commands from the upstream PLC.



# DESIGNING

your drive solution

The following questionnaire is the fastest way to find the best drive for your application.  
Our specialists will be pleased to help you if you have any questions.

|                                  |                      |                     |   |
|----------------------------------|----------------------|---------------------|---|
| Customer name:                   | <input type="text"/> | Date:               | <input type="text"/>  |
| Contact person:                  | <input type="text"/> | Realisation period: | <input type="text"/>  |
| Project name:                    | <input type="text"/> | Quantity series:    | <input type="text"/> <input type="radio"/> p.a./ <input type="radio"/> once |
| Traget price:                    | <input type="text"/> | Quantity pilot run: | <input type="text"/>  |
| Description of your application: | <input type="text"/> |                     |   |

### MOVEMENT AND TORQUE /FORCE

Please fill in either the left or the right side

#### ROTARY

Two of the following values should be known:

(Output) torque (M):  Nm

(Output) speed (n):  rpm

Power (P) (drive side):  W

Power P [W] = torque M [Nm] x speed n [rpm] x 0,1  
(if applicable determine the torque with a torque wrench)

Self-holding torque:  Nm

Brake:  required /  not required

Angle/rotation range:  limited /  unlimited

Degree of the limit:  °

Rotations:  limited /  unlimited

limited to:  rotations



#### LINEAR

Two of the following values should be known:

Force (F):  N

Velocity (v):  m/s

Power (P) (drive side):  W

Power P [W] = force F [N] x velocity v [m/s]

Direction of movement:  vertical /  horizontal

Path:  upstroke /  horizontal displacement

Length:  mm



### AMBIENT CONDITIONS

Ambient temperature: from  to  °C

IP protection class:



Special requirements:

Must the drive be particularly quiet? Does it require protection against dirt etc. (housing)? Will there be strong external influences on the drive such as shocks or vibrations? Are special tests necessary?

### MECHANICAL ADAPTION

Maximum construction space/draft:

Fastening dimensions:

(hole pattern, alignment of the fastening in relation to the output shaft etc., if required)

Output shaft:

(hollow/solid shaft, ø mm, fit, flattening, length, cross bore etc.)

Adjoining modules:

Would you like halstrup-walcher to manufacture / supply / install the modules adjoined to the drive?




Manual release:  required /  not required  
(for manually disconnecting the gearbox during servicing)

### MOTOR INTEGRATION

Selection of the most suitable motor by halstrup-walcher

Requirement: The following motor should be integrated in the design and manufacturing processes:



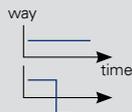
## MODE OF OPERATION AND LIFETIME

Mode of operation:

intermittent



continuous



short term



reversing

How often/how long do you plan to use the drive?

Start-up time (OT)/Basis time:  % at  min

(e.g. 40 % OT at 10 min basis time → 4 min operation, then 6 min break)

Required lifetime:

operating hours

movement cycles

years



## POSITION MONITORING / REPORT required / not required

Please fill in either the left or the right side:

Limit switches:  pieces

Switching angle:

At what angle should the switch be activated? Fixed position or adjustable position?  
Direction of rotation? Relative angular distance to a positive engagement position  
(flattening, cross bore, etc.)

Feedback as:

Should the feedback contact be designed as a changeover, NC or NO contact? What  
is the expected max. switching current (e.g. 1 A)? Accuracy specification of the  
position to be reached (rotary: in degrees of angle, linear: in mm)

Safety function:

Is this purely a feedback function or should the switch break the motor circuit?

Encoder:  selection by halstrup-walcher

magnetic

optical (e.g. incremental disc)

potentiometer

Functions:

Assignment of the angle of rotation (incl. direction of rotation) to the potentiometer  
resistance. Should a specific potentiometer base resistance (e.g. 5 or 20 kΩ) be  
used? Type of feedback signal (e.g. remote tap of the resistance value, 0 .. 10 V or  
digital)? Accuracy specification of the position to be reached (rotary: in degrees of  
angle, linear: in mm)

## ELECTRICAL ADAPTION

Power supply:

Which power supply is provided (DC/AC? voltage? What is the possible max. power  
consumption?)? Are there special sources of interference, which require e.g. an  
elevated EMC-resistance?

Wiring:

Should the contact be produced using screw collars, connectors or a soldered  
connection made by the customer? Are there detailed cable/wiring specifications?  
How should the cable(s) be guided out of the housing?

## COMMUNICATION required / not required

Data transmission:

analog: 0 .. 10 V or 0/4 .. 20 mA

digital: I/O, CANopen, PROFIBUS DP, DeviceNet, Modbus RTU, Sercos,  
EtherCAT, PROFINET, EtherNet/IP, POWERLINK, IO-Link

others: please note

Commands:

What commands must be transmitted (e.g. run command, stop command)?

Feedback:

For what signals/values/states is feedback required (from the drive to the  
control module)?

## FEEDBACK CONTROL required / not required

Feedback control:

Area of application: Position correction within what angle range/stroke range?  
Velocity specification: After what period of time must the target position be reached  
± what tolerance? Special requirements, e.g. slow approach to the limit position,  
prevent overshooting etc.?

Control:

Is a simple right/left signal sufficient? (The signal activates the movement which  
continues until a limit switch is reached)? Is it necessary to reach one (or several)  
specified position(s), e.g. a specific angle after n rotations? Is there a stop signal?  
Should the application stop immediately or run to a resting position?

## OTHER REQUIREMENTS

Packaging:

Selection by halstrup-walcher

Custom-made packaging

Returnable packaging

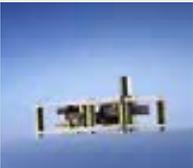
Specifics:

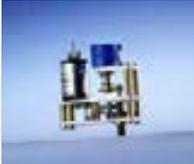
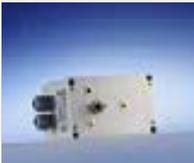
Jog keys, testing, required accessories (e.g. connectors, connector sets, jog key  
box), nominal current, positioning accuracy, axial force, radial force, storage temper-  
ature, address switches, measurement system, behaviour of the drive (obstacles,  
spindle offset run, drag error,...), function blocks, description files, drive profiles,  
weight requirements, special testing requirements?

# PRODUCTS

and applications

# OVERVIEW OF DRIVE PRODUCTS

| Base product  | p. | Max. torque | Max. motor speed  | Special features  | Examples of applications                                   | p. |
|---|----|-------------|---|---|--|----|
|    | 14 | 1 Nm        | 15 rpm (version with AC-motor)<br><br>120 rpm (version with DC-motor) | Compact spur gearbox with rugged circuit board design up to 1 Nm      | Venetian blind control with SLA 1.5                        | 15 |
|   |    |             |   |   | N40x50 P Semi-intelligent auxiliary drive logistics system | 16 |
|    | 17 | 3 Nm        | 60 rpm (version with AC-motor)<br><br>160 rpm (version with DC-motor) | Very compact spur gearbox with rugged circuit board design up to 3 Nm | Brush rotation drive N64V30 KG                             | 18 |
|   |    |             |   |   | Positioning drive for furnace air intake N64V30 IF         | 19 |
|  | 20 | 5 Nm        | 10 rpm  | Spur gearbox (and drive) in metal housing IP 65                       | Turnstile adjustment with N72 K                            | 21 |
|  | 22 | 20 Nm       | 4 rpm (version with AC-motor)<br><br>30 rpm (version with DC-motor)   | Compact power-house up to 20 Nm                                       | Ball control valve N100 P                                  | 23 |
|   |    |             |   |   | Pellet conveyor screw N100 W                               | 24 |
|   |    |             |   |   | Damper actuator GT50                                       | 25 |

| Base product  | p. | Max. torque | Max. motor speed          | Special features  | Examples of applications   | p. |
|---|----|-------------|---------------------------|---|--|----|
| N30x120<br>                      | 26 | -           | -                         | Small drive for restricted construction spaces  | Adjust smoke extraction damper<br>                            | 26 |
| N22x65<br>                       | 27 | -           | -                         | Precision drive with fine manual adjustment   | Adjustment of colour zones<br>                                | 27 |
| BK80<br>                         | 28 | 8 Nm        | -                         | Toolbox system with many transmission ratios  | Revolving cup dispensers in beverage vending machines<br>     | 29 |
| ST 120 KG<br>                   | 30 | 10 Nm       | 30 rpm (DC)<br>2 rpm (AC) | Rugged drive in plastic housing IP 55   | Positioning the lid in textile machines with TR 130i<br>     | 31 |
| Complete module with drive<br> | 32 | -           | -                         | Cost optimised drive with plastic and brass gear wheels<br><br>Also supplied with complete mechanical module (here: flap) | Flue gas damper drive<br>                                   | 32 |
| SP72<br>                       | 33 | -           | -                         | Linear drive in metal housing   | Linear drive for speed control of ship's diesel engines<br> | 33 |

We have realised many customer-specific solutions. This overview and the examples presented here are merely an illustration of the broad range of possibilities. If you wish to send us a specific enquiry, we recommend that you use the questionnaire on p.9 or our online product enquiry. Our specialists will be pleased to assist you.

## ONLINE ENQUIRY ASSISTANT

**Let our assistant help you submit your online enquiry.**

Our form fields ensure you provide all the necessary information. You can upload data and then send us your enquiry. We will then contact you to further clarify your order.

[www.halstrup-walcher.de/configurator](http://www.halstrup-walcher.de/configurator)



The screenshot shows a web-based enquiry form. At the top, there's a header with a blue and orange bar. Below it, there are several sections: 'Measurement and torque' with a note about accuracy, 'Product data' with fields for 'Product name', 'Product code', 'Product description', 'Product type', 'Product size', 'Product weight', 'Product length', 'Product width', 'Product height', 'Product material', 'Product color', 'Product finish', 'Product quantity', and 'Product unit'. There's also a 'Send enquiry' button. On the right side, there's a 'Default configuration' section with a 'Step 1: 1' indicator and a 'Send enquiry' button. A large blue circular arrow icon is also visible.

|                             |  |
|-----------------------------|--|
| Max. power output           | 8 W  |
| Permitted axle load         |  |
| radial                      | 30 N   |
| axial                       | 20 N   |
| Temporary peak torque       | 1.2 Nm   |
| Gear backlash, unloaded     | 0.9..2° depending on design  |
| Operating temperature range | -10..65 °C   |
| Weight (without motor)      | approx. 0.1 kg   |
| Protection class            | IP 40 (with dust hood)   |
| Service life                | At the nominal load, the gearboxes have a service life of min. 2.000 operating hours |

### Technical data (typical values)

#### 1. AC-motor (motor speed approx. 375 rpm)

| Output speed | Nominal torque | A  |
|--------------|----------------|----|
| 0.5 rpm      | 1 Nm           | 1A |
| 0.75 rpm     | 1 Nm           | 2A |
| 1.5 rpm      | 0.6 Nm         | 3A |
| 3.75 rpm     | 0.25 Nm        | 4A |
| 5 rpm        | 0.2 Nm         | 5A |
| 7.5 rpm      | 0.14 Nm        | 6A |
| 15 rpm       | 0.08 Nm        | 7A |

Others available upon request.

| Supply voltage                | B   |
|-------------------------------|-----|
| 230 VAC, +6 % / -15 % (50 Hz) | 230 |
| 115 VAC, +6 % / -15 % (50 Hz) | 115 |
| 24 VAC, +6 % / -15 % (50 Hz)  | 24A |

#### 2. DC-motor (motor speed approx. 3000 rpm)

| Output speed | Nominal torque | A  |
|--------------|----------------|----|
| 4 rpm        | 1 Nm           | 1D |
| 6 rpm        | 1 Nm           | 2D |
| 12 rpm       | 1 Nm           | 3D |
| 30 rpm       | 0.8 Nm         | 4D |
| 40 rpm       | 0.7 Nm         | 5D |
| 60 rpm       | 0.5 Nm         | 6D |
| 120 rpm      | 0.3 Nm         | 7D |

Others available upon request. The nominal speed of gearboxes with DC-motor is dependent on the load.

| Supply voltage        | B   |
|-----------------------|-----|
| 24 VDC, +20 % / -15 % | 24D |
| 12 VDC, +20 % / -15 % | 12D |

| Order code | A | B |
|------------|---|---|
| N40V       | - | - |

Customer-specific solutions available on request!

## Spur gearbox up to 1 Nm N 40V



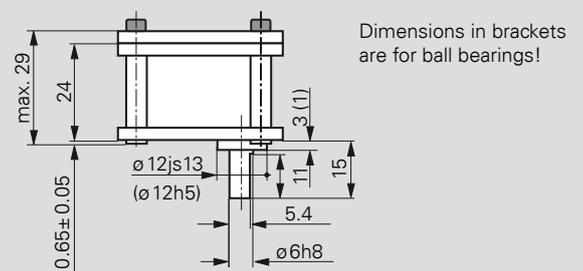
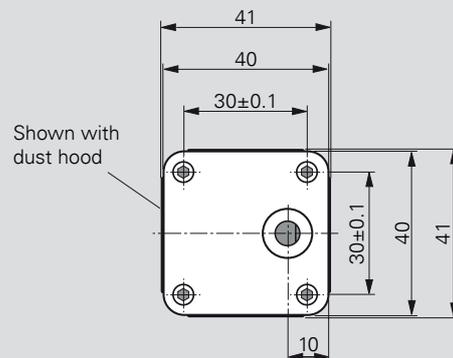
### Features

- Compact spur gearbox with rugged circuit board design up to 1 Nm
- Output shaft is case hardened and plain-bearing mounted
- Steel gear wheels
- Plastic dust hood
- Continuous greasing

### Options

- Special designs for the output shaft
- Ball-bearing mounted output shaft
- Low noise emission design
- Special lubrication for extended temperature range
- Limit switch

### Transmission ratios 25:1 to 750:1

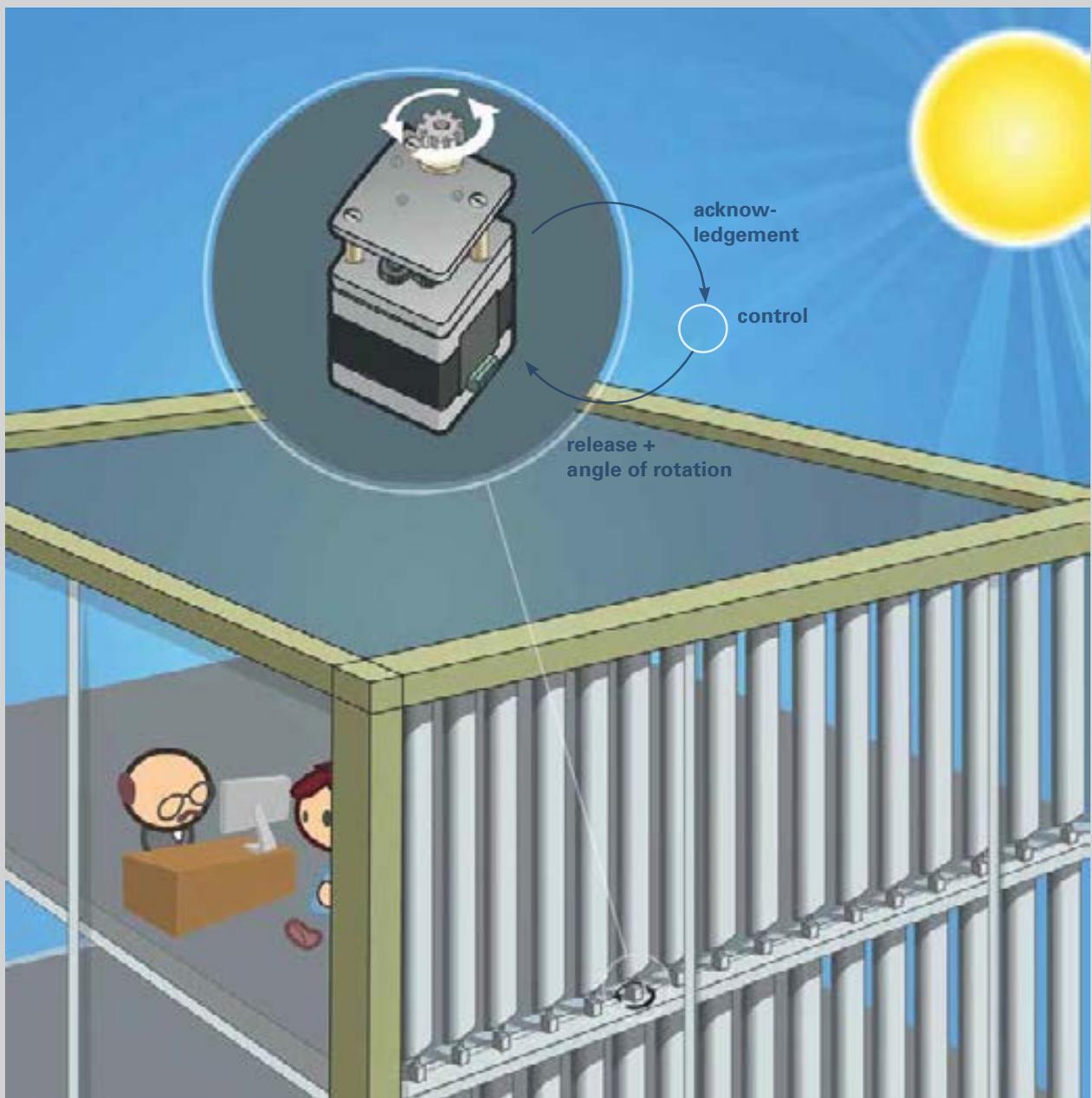


# TURNING VENETIAN BLINDS



## ADJUSTMENT OF VENETIAN BLINDS USING THE SLA 1.5

Working in direct sunlight can be uncomfortable and interferes with everyday office life. Full-length venetian blinds are a convenient way to provide relief and shade. The SLA 1.5 ensures that the slats of venetian blinds are adjusted to the correct angle every hour of the day.

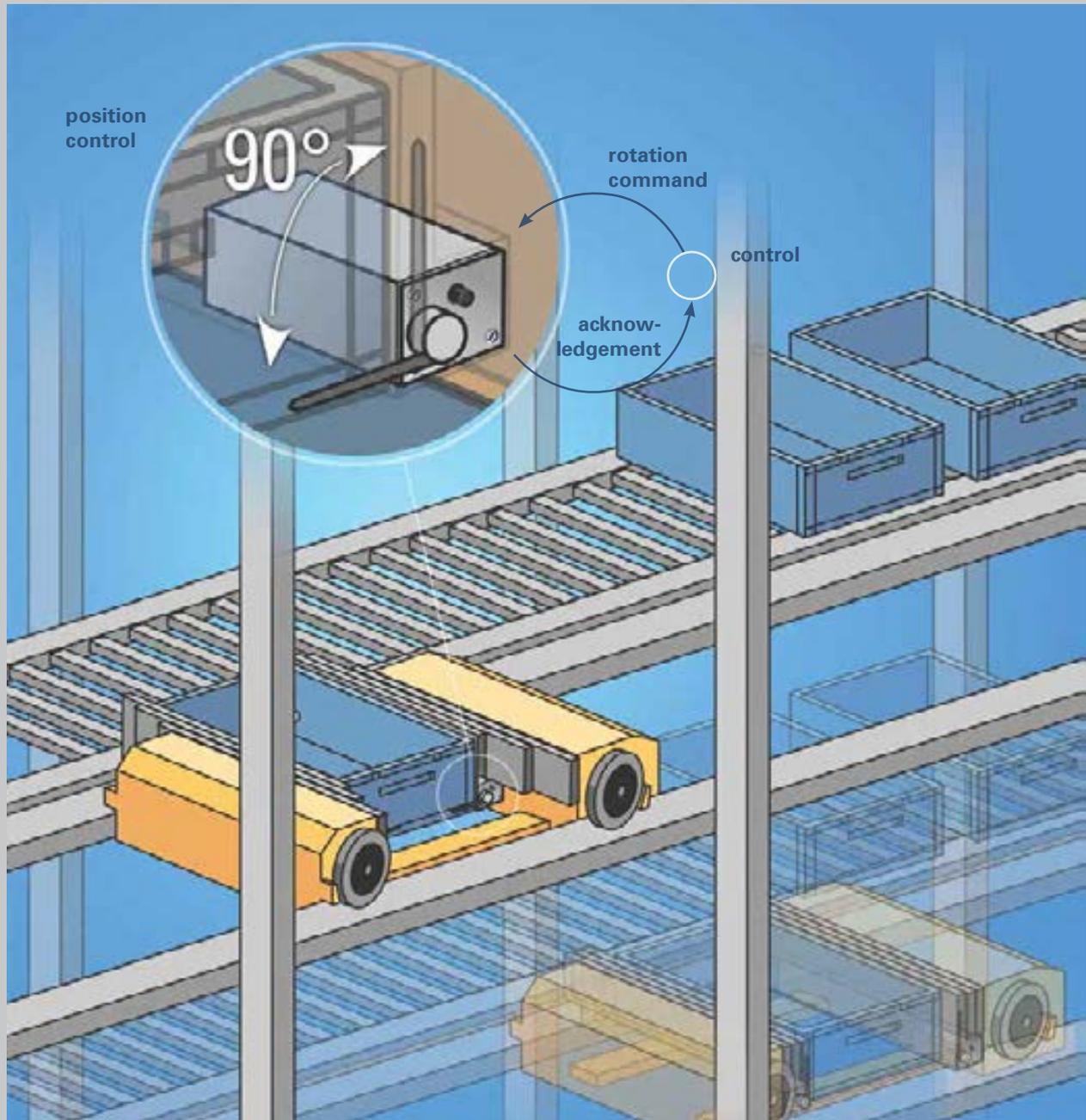


# AUXILIARY DRIVE FOR LOGISTICS SYSTEM

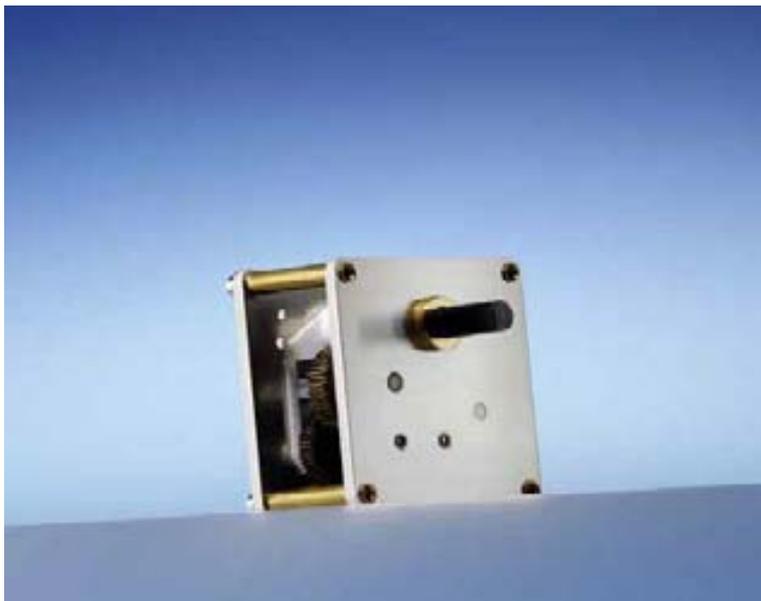


## MOVING LOGISTICS BOXES WITH THE N40X50P

At -30°C, these boxes are stored and retrieved using fully automated processes. A conveyor carriage is dispatched to the specified storage bay where it extends its side arms under the box. Four N40x50P units turn a finger under each corner – and the box and carriage glide away smoothly to their destination.



# Spur gearbox up to 3 Nm N 64 V 30



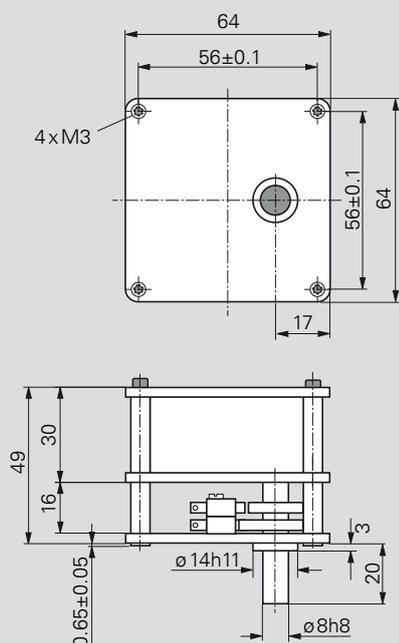
## Features

- Very compact spur gearbox with rugged circuit board design up to 3 Nm
- Output shaft is case hardened and plain-bearing mounted
- Steel gear wheels
- Plastic dust hood
- Continuous greasing

## Options

- Special designs for the output shaft
- Ball-bearing mounted output shaft
- Low noise emission design
- Special lubrication for extended temperature range
- Limit switch

## Transmission ratios 5:1 to 2500:1



|                             |   |
|-----------------------------|---|
| Max. power output           | 50 W  |
| Permitted axle load         |   |
| radial                      | 30 N  |
| axial                       | 20 N  |
| Temporary peak torque       | 5 Nm  |
| Gear backlash, unloaded     | 0.9..2° depending on design   |
| Operating temperature range | -10..65 °C  |
| Weight (without motor)      | approx. 0.3 kg  |
| Protection class            | IP 40 (with dust hood)  |
| Service life                | At the nominal load, the gearboxes have a service life of min. 2000 operating hours |

## Technical data (typical values)

### 1. AC-motor (motor speed approx. 375 rpm)

| Output speed | Nominal torque | A  |
|--------------|----------------|----|
| 0,5 rpm      | 3 Nm           | 1A |
| 1 rpm        | 3 Nm           | 2A |
| 2.5 rpm      | 3 Nm           | 3A |
| 5 rpm        | 3 Nm           | 4A |
| 10 rpm       | 2.5 Nm         | 5A |
| 20 rpm       | 1.5 Nm         | 6A |
| 60 rpm       | 0.6 Nm         | 7A |

Others available upon request.

| Supply voltage                | B   |
|-------------------------------|-----|
| 230 VAC, +6 % / -15 % (50 Hz) | 230 |
| 115 VAC, +6 % / -15 % (50 Hz) | 115 |
| 24 VAC, +6 % / -15 % (50 Hz)  | 24A |

### 2. DC-motor (motor speed approx. 3000 rpm)

| Output speed | Nominal torque | A  |
|--------------|----------------|----|
| 2 rpm        | 3 Nm           | 1D |
| 4 rpm        | 3 Nm           | 2D |
| 8 rpm        | 3 Nm           | 3D |
| 20 rpm       | 3 Nm           | 4D |
| 40 rpm       | 3 Nm           | 5D |
| 80 rpm       | 1.7 Nm         | 6D |
| 160 rpm      | 1 Nm           | 7D |

Others available upon request. The nominal speed of gearboxes with DC-motor is dependent on the load.

| Supply voltage        | B   |
|-----------------------|-----|
| 24 VDC, +20 % / -15 % | 24D |
| 12 VDC, +20 % / -15 % | 12D |

| Order code | A | B |
|------------|---|---|
| N 64V 30   | - | - |

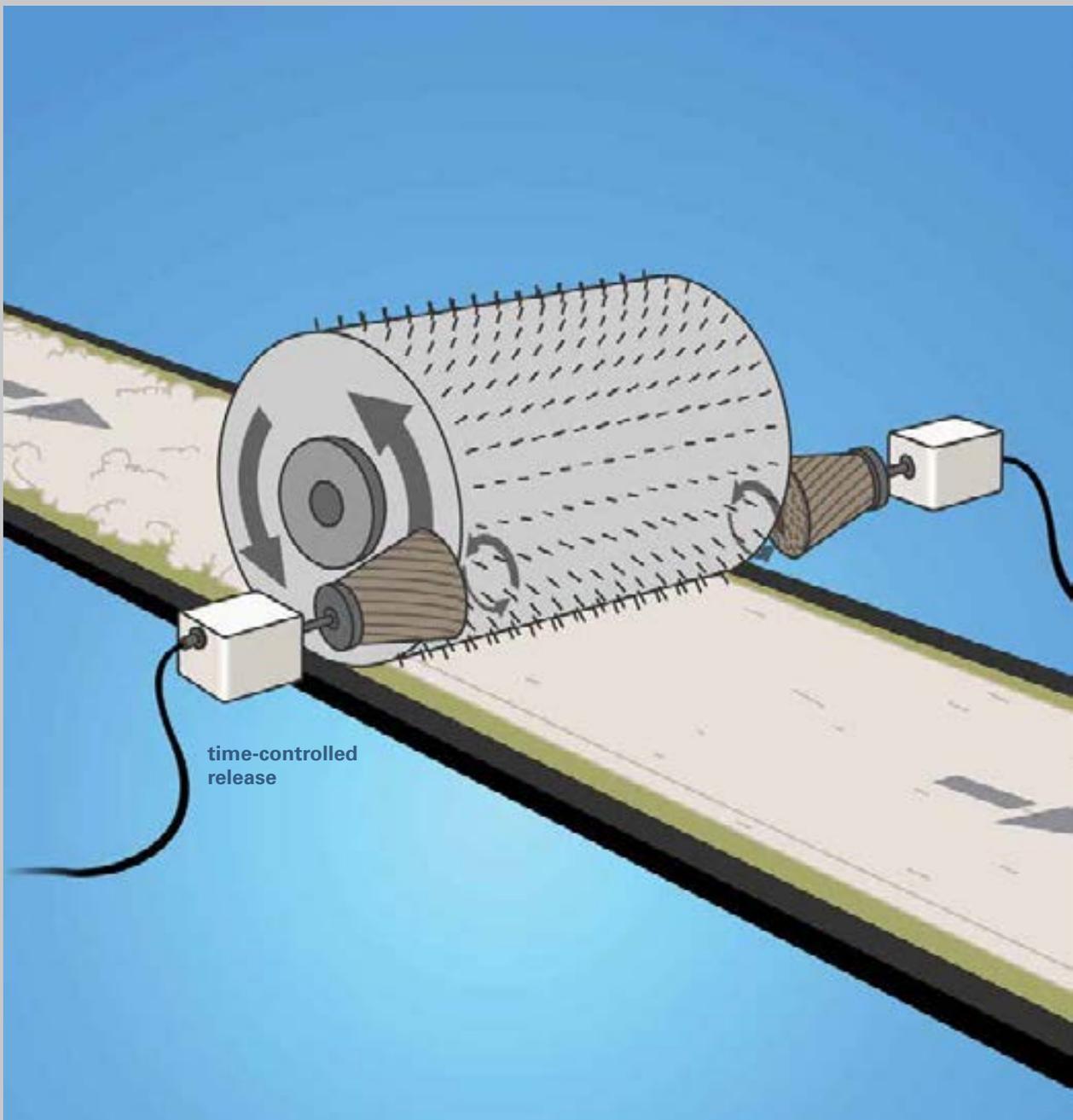
Customer-specific solutions available on request!

## BRUSH ROTATION DRIVE



### N64 V30KG ROTATION DRIVE IN TEXTILE MACHINES

Carding is a process that aligns cotton fibres to produce loose textile fibres (fleece). Brushes at the sides remove clumps and aggregations of material. The compact N64V30KG drive performs this task efficiently and is resistant to the microscopic dust particles generated in the immediate environment by the process.

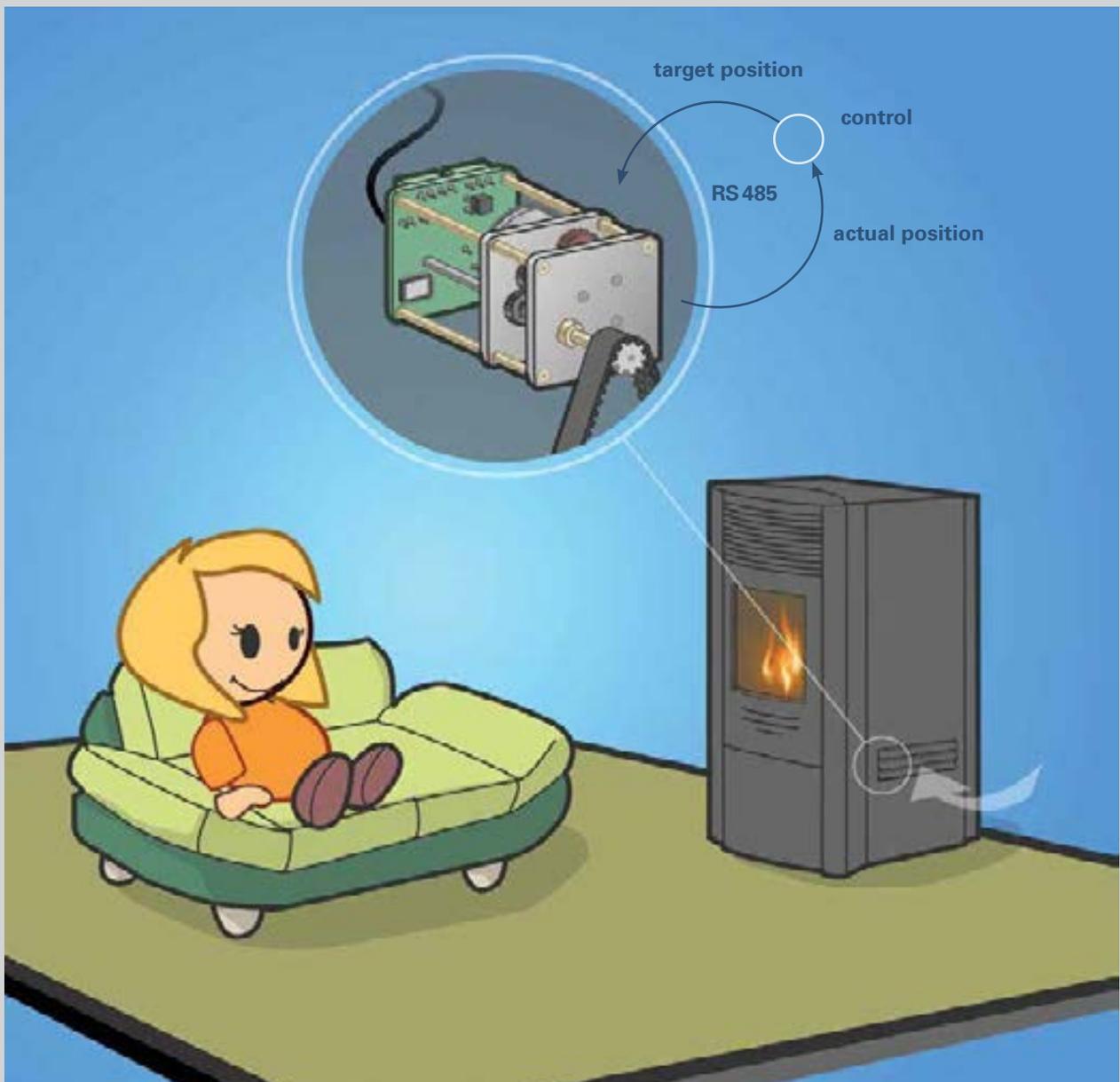


## POSITIONING FURNACE AIR INTAKE FLAPS



### N64V30IF POSITIONING DRIVE FOR AIR INTAKE FLAPS IN FURNACES

The N64V30IF positioning drive is exceptionally quiet and was developed for positioning furnace air intake flaps. In order to ensure that fuel is burned with maximum efficiency, a precisely defined volume of air is allowed to enter during each phase of combustion. The absolute position is measured using a potentiometer. Communication is via an RS485 interface. The drive must comply with the highest standards of safety and reliability as incorrect functioning can result in deflagration.



|                             |  |
|-----------------------------|--|
| Max. power output           | 2 W  |
| Permitted axle load         |  |
| radial                      | 30 N   |
| axial                       | 20 N   |
| Temporary peak torque       | 8 Nm   |
| Gear backlash, unloaded     | 0.9.. 2° depending on design   |
| Operating temperature range | -10..65°C  |
| Weight (without motor)      | approx. 0.7 kg   |
| Protection class            | IP65   |
| Service life                | At the nominal load, the gearboxes have a service life of min. 2.000 operating hours |

### Technical data (typical values)

AC-motor (motor speed approx. 375 rpm)

| Output speed | Nominal torque | A  |
|--------------|----------------|----|
| 0.5 rpm      | 5 Nm           | 1A |
| 1 rpm        | 5 Nm           | 2A |
| 2 rpm        | 4 Nm           | 3A |
| 5 rpm        | 2 Nm           | 4A |
| 10 rpm       | 1 Nm           | 5A |

Others available upon request.

| Supply voltage            | B   |
|---------------------------|-----|
| 230 VAC, +6%/-15% (50 Hz) | 230 |
| 115 VAC, +6%/-15% (50 Hz) | 115 |
| 24 VAC, +6%/-15% (50 Hz)  | 24A |

| Order code | A | B |
|------------|---|---|
| N72        | - | - |

Customer-specific solutions available on request!



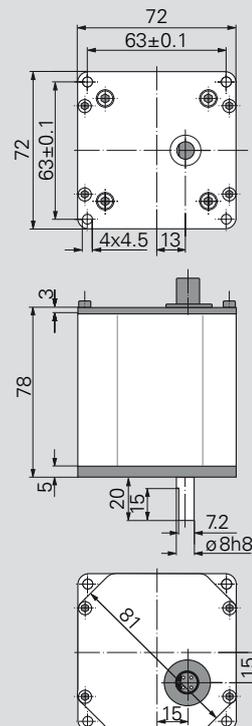
### Features

- Spur gearbox (and motor) in aluminium housing
- Protection class: IP65
- Rugged design
- Output shaft is case hardened and plain-bearing mounted
- Steel gear wheels
- Continuous greasing

### Options

- Special designs for the output shaft
- Ball-bearing mounted output shaft
- Special lubrication for extended temperature range
- Limit switch

### Transmission ratios 5:1 to 750:1

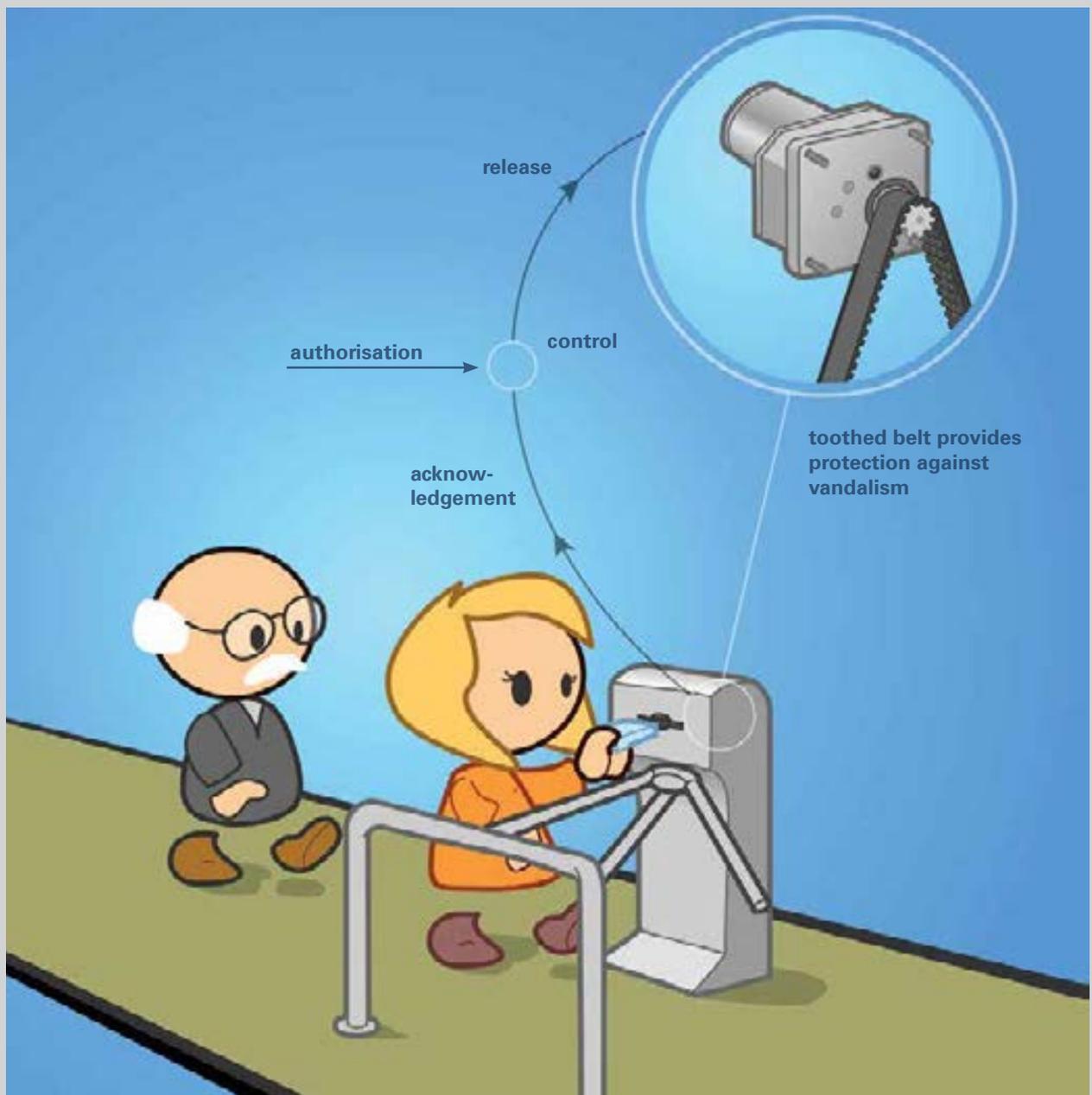


## SPUR GEAR FOR POSITIONING OF TURNSTILES



### POSITIONING TURNSTILES USING THE N72 K

Entrance facilities designed to control flows of people in public areas frequently use turnstiles. The halstrup-walcher N72 K allows the turnstile to rotate through an angle of 120°. The angle of rotation is released or blocked by mechanical stops. The turnstiles are activated using ticket readers that authorise ticket holders to enter. The N72 K runs quietly and is notable for its powerful drive and rugged design.



|                             |  |
|-----------------------------|--|
| Max. power output           | 80 W   |
| Permitted axle load         |  |
| radial                      | 80 N   |
| axial                       | 60 N   |
| Temporary peak torque       | 22 Nm  |
| Gear backlash, unloaded     | 0.9..2° depending on design  |
| Operating temperature range | -10°..65°C   |
| Weight (without motor)      | approx. 0.45 kg  |
| Protection class            | IP 44 (with dust hood)   |
| Service life                | At the nominal load, the gearboxes have a service life of min. 2.000 operating hours |

## Technical data (typical values)

### 1. AC-motor (motor speed approx. 375 rpm)

| Output speed | Nominal torque | A  |
|--------------|----------------|----|
| 0.25 rpm     | 20 Nm          | 1A |
| 0.5 rpm      | 20 Nm          | 2A |
| 1 rpm        | 20 Nm          | 3A |
| 2 rpm        | 10 Nm          | 4A |
| 4 rpm        | 6.5 Nm         | 5A |

Others available upon request.

| Supply voltage            | B   |
|---------------------------|-----|
| 230 VAC, +6%/-15% (50 Hz) | 230 |
| 115 VAC, +6%/-15% (50 Hz) | 115 |
| 24 VAC, +6%/-15% (50 Hz)  | 24A |

### 2. DC-motor (motor speed approx. 3000 rpm)

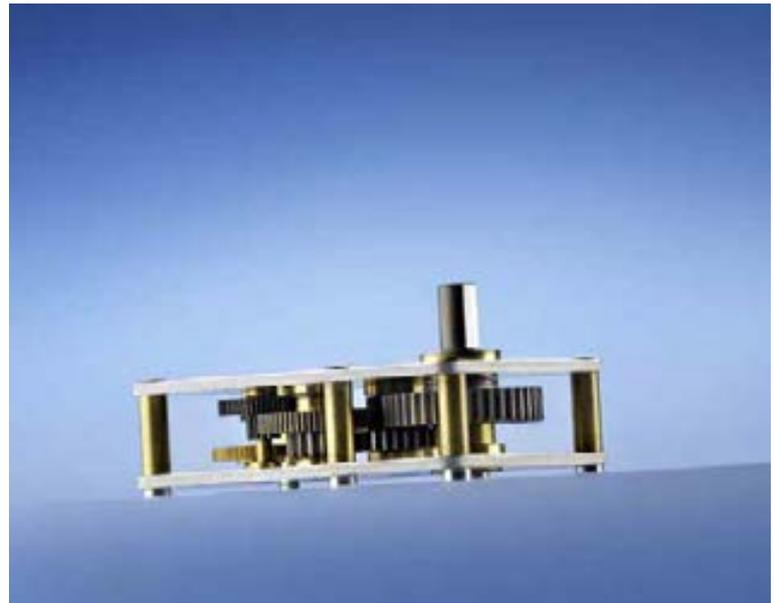
| Output speed | Nominal torque | A  |
|--------------|----------------|----|
| 2 rpm        | 20 Nm          | 1D |
| 4 rpm        | 20 Nm          | 2D |
| 7.5 rpm      | 14 Nm          | 3D |
| 15 rpm       | 7 Nm           | 4D |
| 30 rpm       | 4 Nm           | 5D |

Others available upon request. The nominal speed of gearboxes with DC-motor is dependent on the load.

| Supply voltage    | B   |
|-------------------|-----|
| 24 VDC, +20%/-15% | 24D |
| 12 VDC, +20%/-15% | 12D |

| Order code | A | B |
|------------|---|---|
| N 100      | - | - |

Customer-specific solutions available on request!



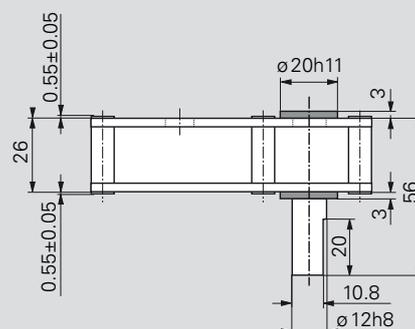
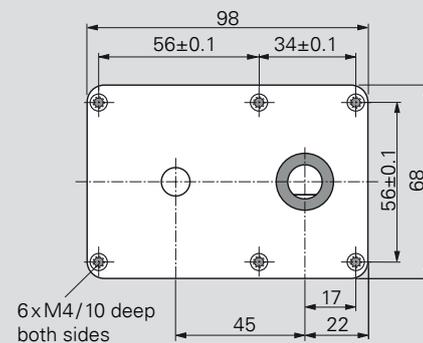
## Features

- Compact pocket powerhouse up to 20 Nm
- Output shaft is case hardened and plain-bearing mounted
- Steel gear wheels
- Plastic dust hood
- Continuous greasing

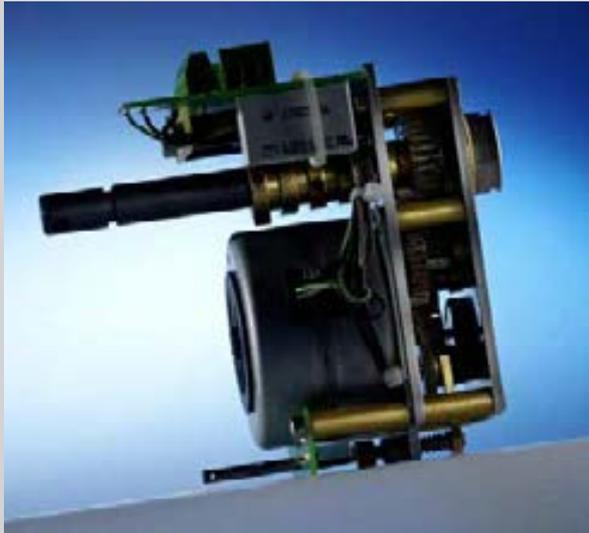
## Options

- Special designs for the output shaft
- Ball-bearing mounted output shaft
- Low noise emission design
- Special lubrication for extended temperature range
- Limit switch
- Potentiometer for position measurement

## Transmission ratios 25:1 to 3000:1

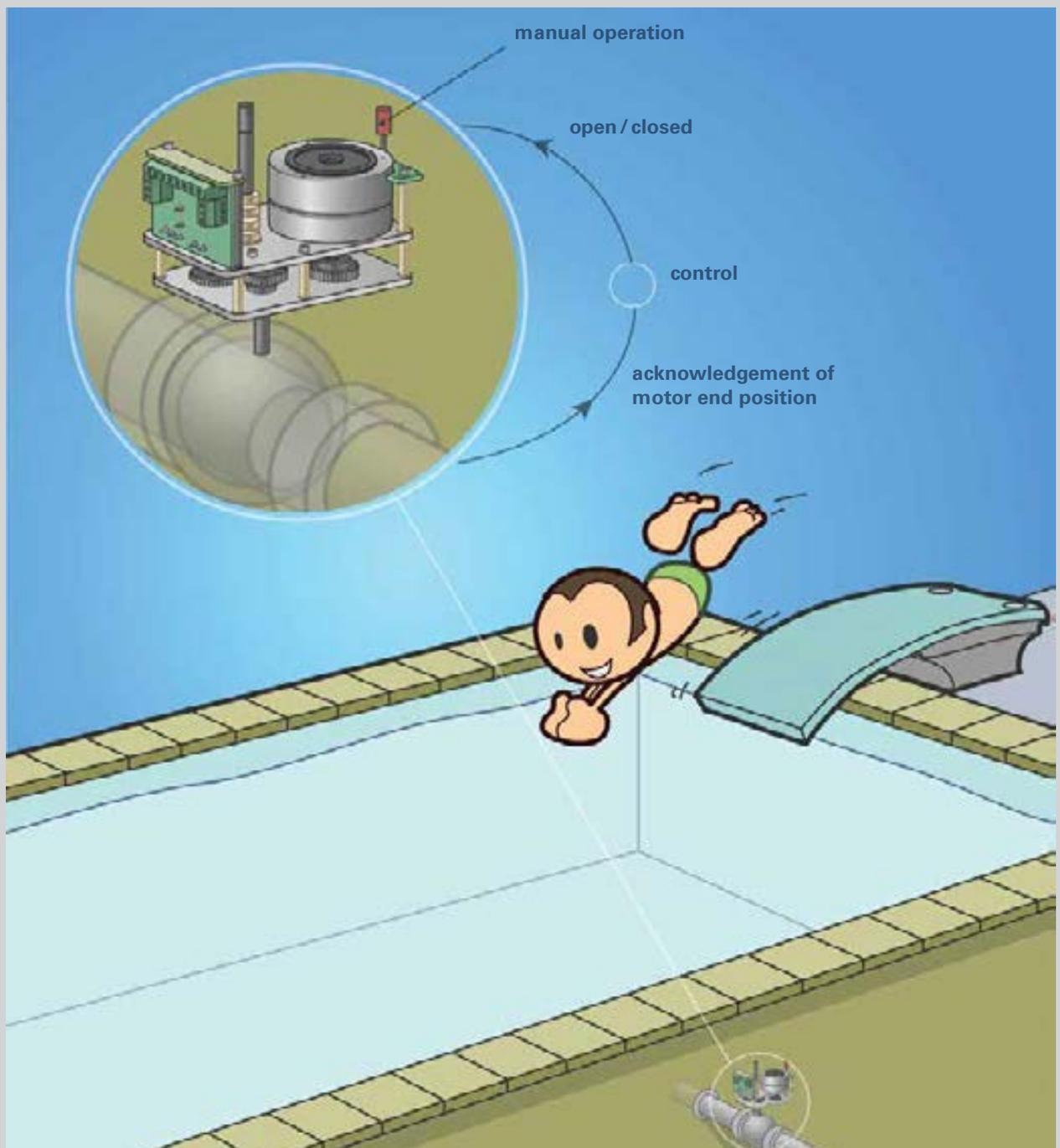


# BALL CONTROL VALVE



## POSITIONING OF VALVES OR PUMPS USING THE N 100 P

Ball valves for use with water must be positioned reliably. In the same way, with membrane pumps it is necessary to adjust the flow rate. The N 100 P offers a powerful and robust solution to these tasks.

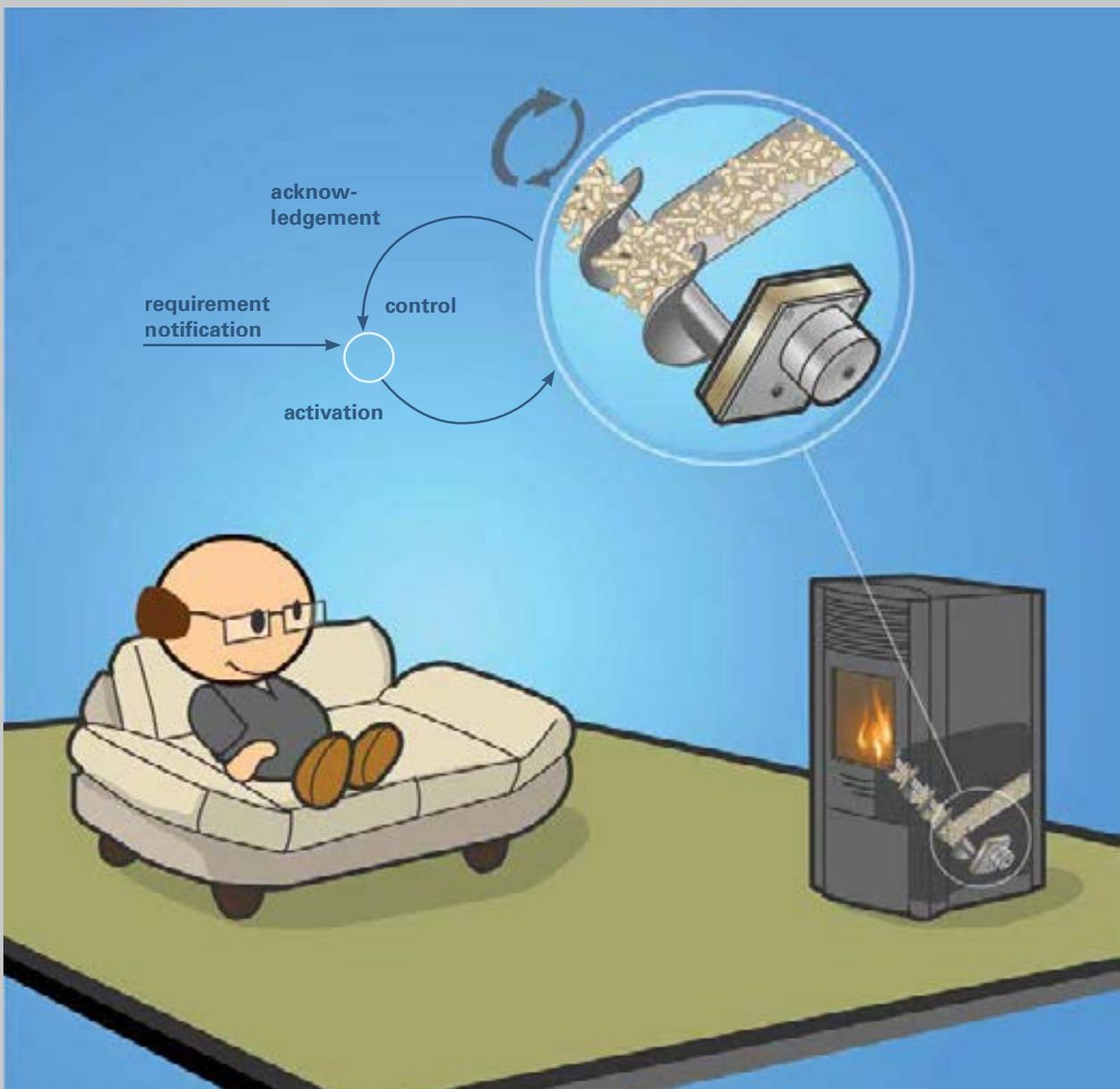


# SCREW CONVEYOR FOR SOLID FUEL PELLETS



## DRIVING SCREW CONVEYORS FOR SOLID FUEL PELLETS WITH THE N 100 W

A powerful motor/gearbox drive unit propels a screw conveyor, moving pellets from a reserve tank into the combustion chamber of a pellet furnace. The speed (rpm), and therefore the quantity of fuel being delivered to the furnace, can be regulated according to the heat output required so the room temperature can be controlled flexibly and evenly. The halstrup-walcher N 100 W motor/gearbox unit runs exceptionally quietly and is notable for its compact, powerful design.

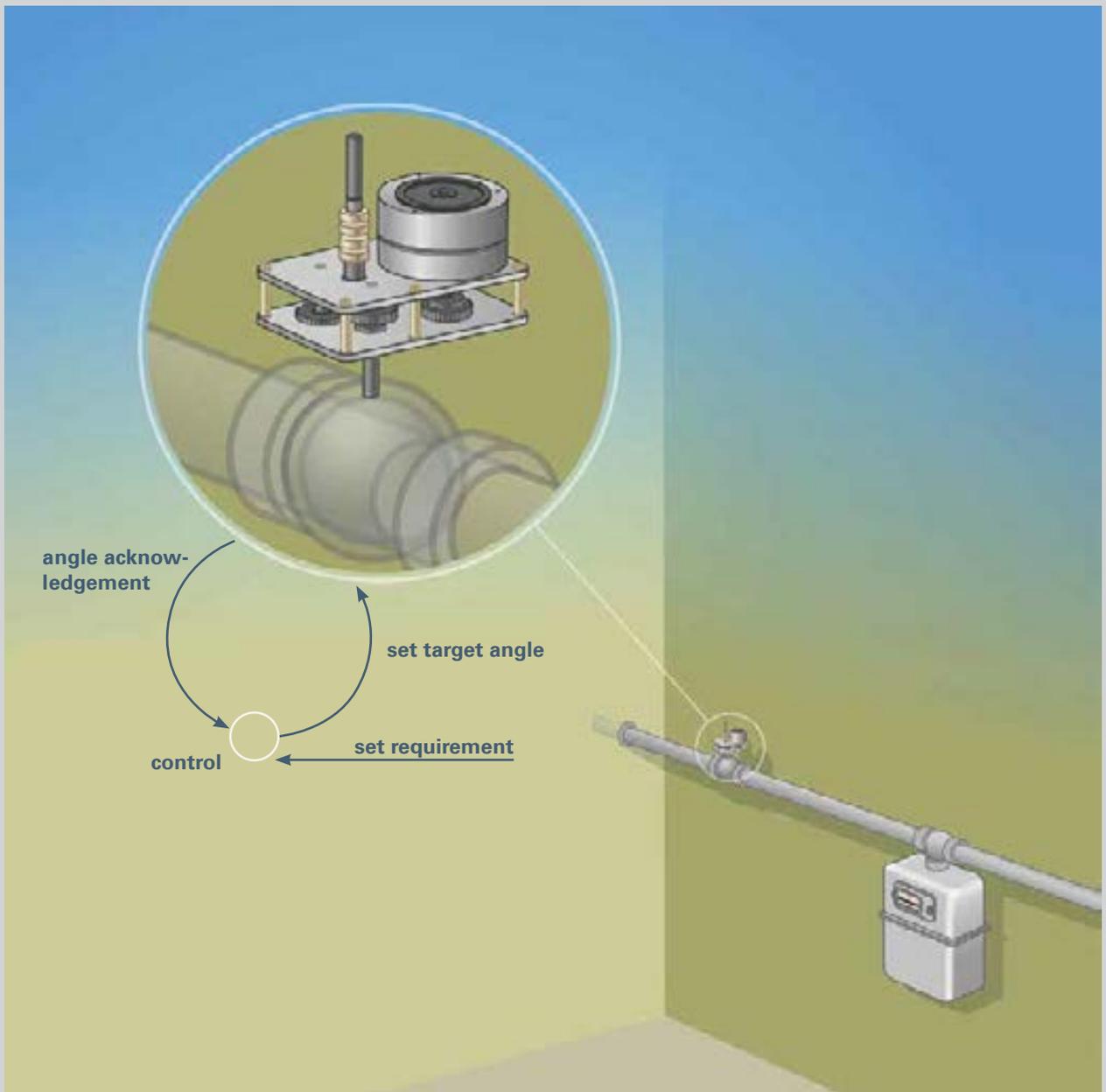


# DRIVE FOR FLAP VALVE



## POSITIONING OF INDUSTRIAL VALVES USING THE GT 50

The halstrup-walcher GT 50 is primarily used for controlling flap valves in industrial heating applications for making steel, ceramics and building materials. By ensuring the optimum mixture of gas and air, it is possible to achieve an even temperature distribution in the oven atmosphere. The GT 50 is a compact drive with a flat build and offers a wide range of torques and positioning velocities.

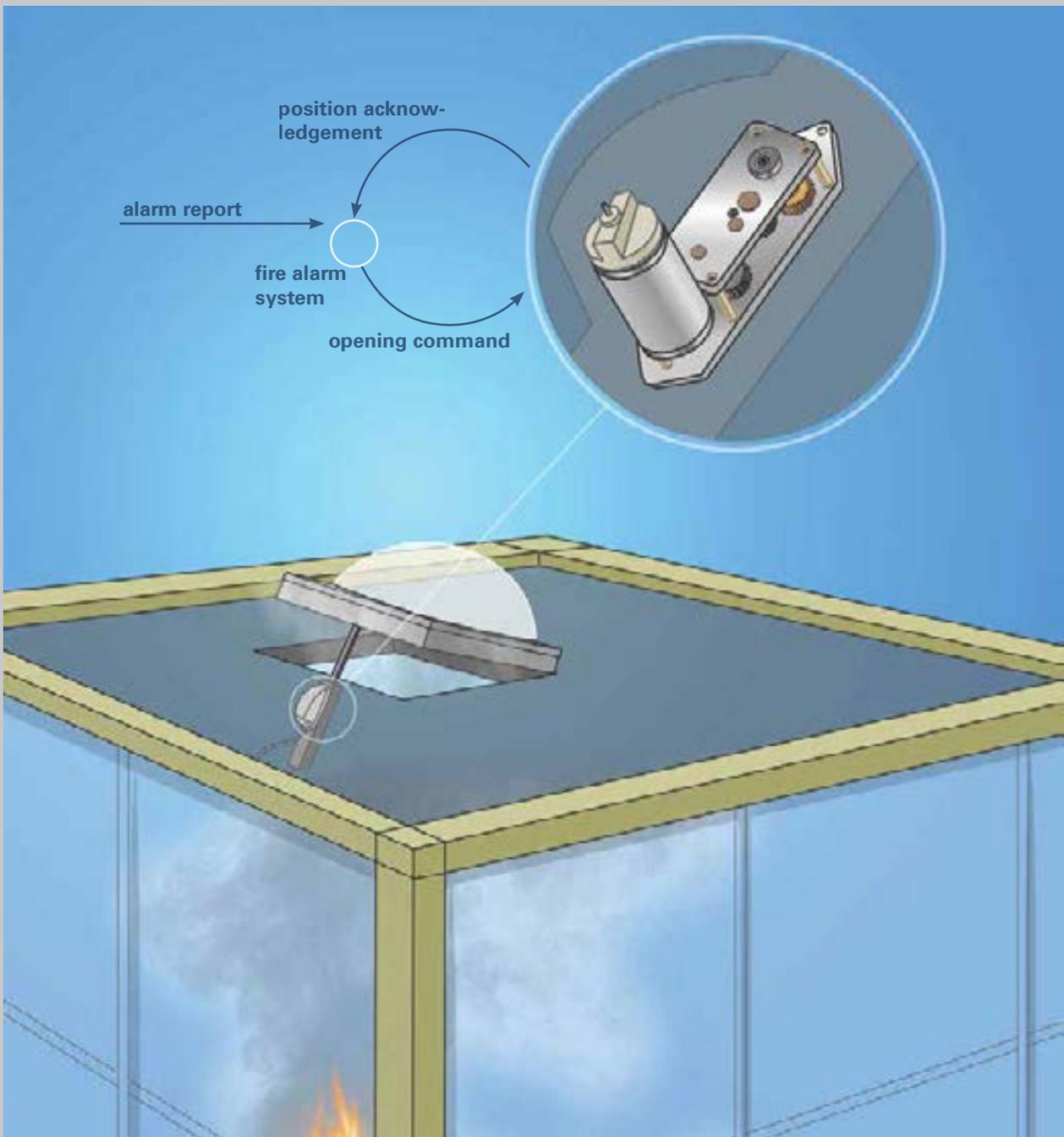


# SMALL DRIVE FOR SLIM CONSTRUCTION DESIGNS



## POSITIONING OF SMOKE EXTRACTION DAMPERS & WINDOWS USING THE N30x120

Smoke and fumes produced during building fires pose a hazard to people and damage property. Lawmakers therefore require the installation of reliable smoke extraction equipment. The N30x120 is exceptionally quiet and used to adjust the position of smoke extraction dampers and windows. The compact drive is reliable and complies with the highest safety standards. For example, the integrated brake guarantees a high self-holding torque.

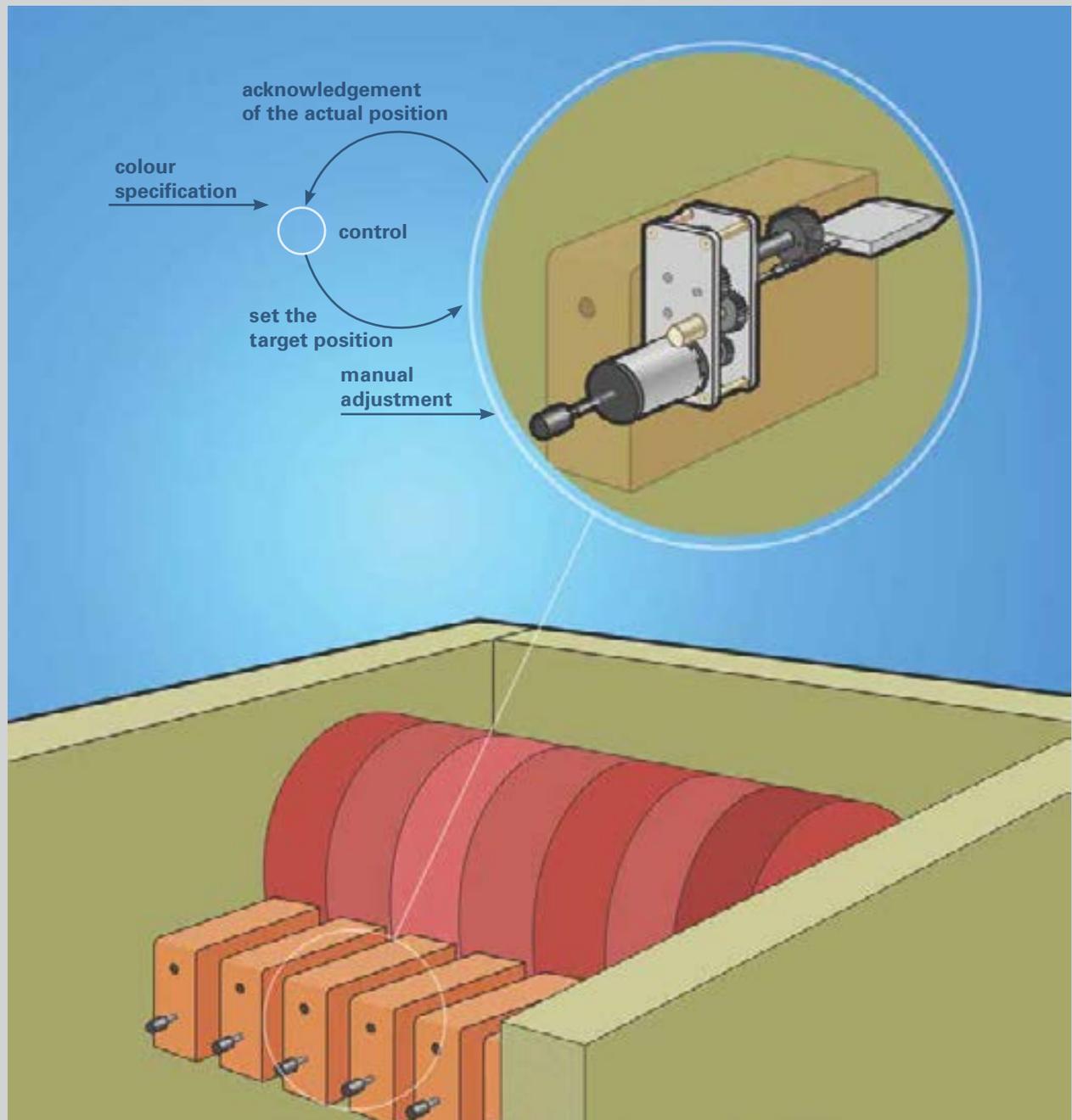


## PRECISION DRIVE WITH FINE MANUAL ADJUSTMENT



### POSITIONING COLOUR ZONES IN PRINTING MACHINES USING THE N22X65

The N22x65 drive adjusts the positions of the metal tongues attached to the printing rollers. A special fine manual adjustment feature is also provided. The distance between the metal tongues and the printing roller controls the quantity of ink applied. The N22x65 is reliable and notable for its compact size and long service life – an important factor in reducing service intervals and costs.



|                             |  |
|-----------------------------|--|
| Max. power output           | 60 W   |
| Permitted axle load         |  |
| radial                      | 60 N   |
| axial                       | 40 N   |
| Nominal torque              | 8 Nm   |
| Temporary peak torque       | 10 Nm  |
| Gear backlash, unloaded     | 0.9..2° depending on design  |
| Operating temperature range | -10..65°C  |
| Weight (without motor)      | approx. 0.4 kg   |
| Protection class            | IP 54  |
| Service life                | At the nominal load, the gearboxes have a service life of min. 2.000 operating hours |

## Technical data

| Gearbox transmission ratios | Max. motor shaft Ø | A  |
|-----------------------------|--------------------|----|
| i = 37.5                    | 5 mm               | 1  |
| i = 75                      | 7 mm               | 2  |
| i = 93.75                   | 7 mm               | 3  |
| i = 100                     | 7 mm               | 4  |
| i = 150                     | 4 mm               | 5  |
| i = 187.5                   | 4 mm               | 6  |
| i = 250                     | 4 mm               | 7  |
| i = 375                     | 5 mm               | 8  |
| i = 500                     | 5 mm               | 9  |
| i = 1000                    | 4 mm               | 10 |

| Motor  | B |
|--|---|
| Manufacturer, model, supply voltage, output shaft diameter |   |

| Order code | A | B |
|------------|---|---|
| BK 80      | - | - |

Customer-specific solutions available on request!



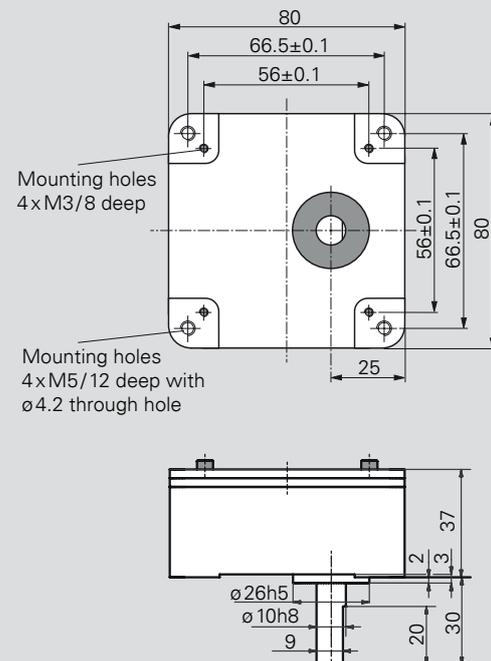
## Features

- Kit with wide selection of pre-developed transmission ratios (further ratios available on request)
- Long service life and stability with case hardened output shaft, ball bearings and steel gear wheels
- Closed aluminium housing ensures low noise emissions and high protection class
- Maintenance free with continuous greasing

## Options

- Special output shafts
- Special lubrication for extended temperature range
- Motor assembly

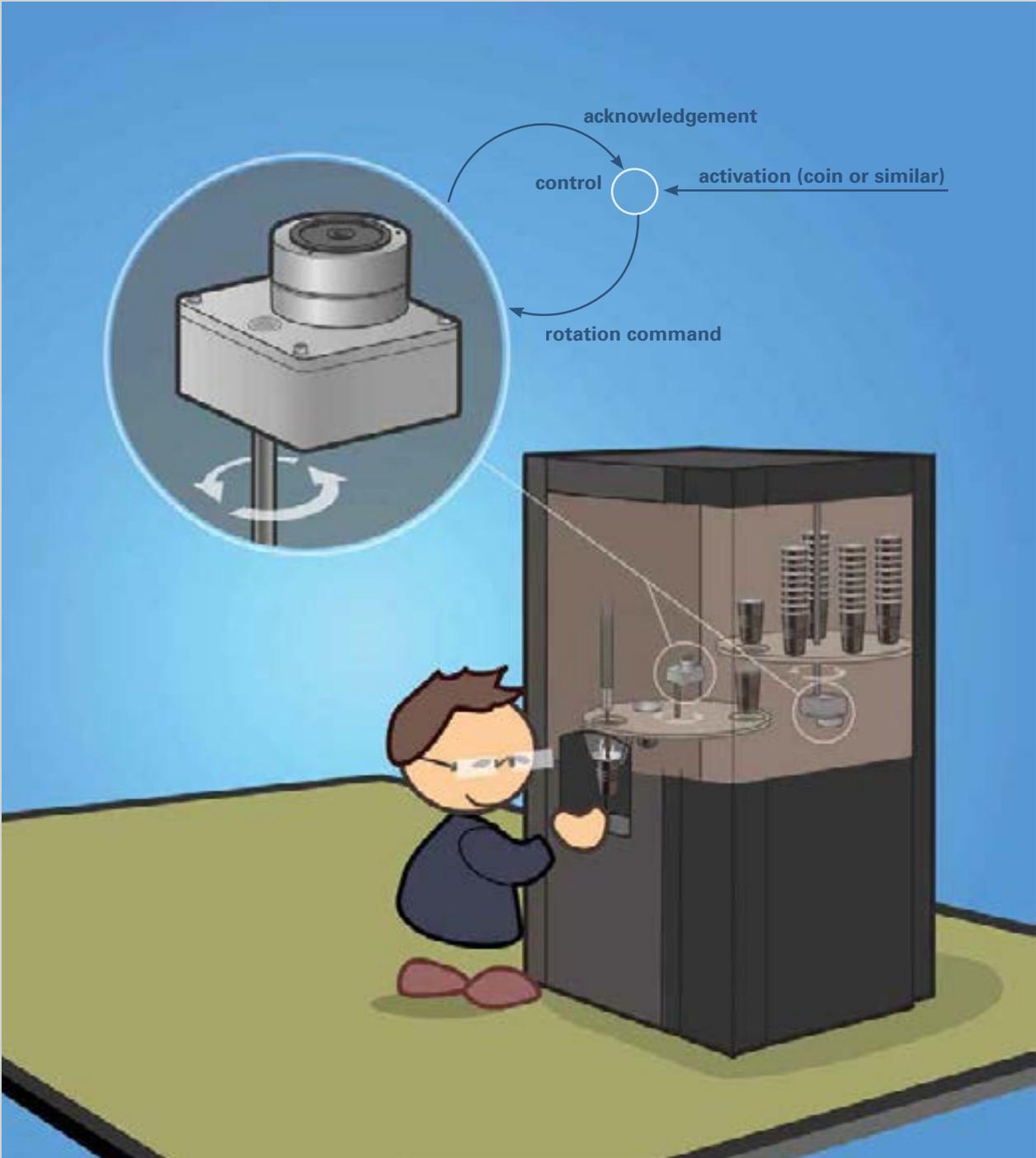
## Transmission ratios 37,5:1 to 1000:1



# REVOLVING CUP DISPENSERS IN BEVERAGE VENDING MACHINES

## AUTOMATED CUP SUPPLY WITH THE BK80

Revolving cup dispensers are frequently used in automated beverage vending machines to provide a compact and trouble-free supply of cups. The BK80 offers persuasive performance in this application with a compact, rugged design, and long service life.



|   |   |
|---|---|
| Nominal power output  | AC-motor: 0.6 W (100 % OT)<br>DC-motor: 3 W (30 % OT)     |
| Nominal current   | with AC-motor: 0.2 A<br>with DC-motor: 1 A                |
| No-load current   | with AC-motor: 0.2 A<br>with DC-motor: 0.2 A              |
| Shock resistance<br>in accordance with IEC/DIN EN 60068-2-27    | 50 g 11 ms  |
| Vibration resistance<br>in accordance with IEC/DIN EN 60068-2-6 | 10..55 Hz 1,5 mm/<br>55..1000 Hz 10 g/<br>10..2000 Hz 5 g |
| Output shaft  | 12 h 8 circular shaft                                     |
| Maximum axial force   | 20 N  |
| Maximum radial force  | 30 N  |
| Positioning range   | 300°  |
| Potentiometer (optional)  | 5 K $\Omega$ , linearity $\pm$ 2 %                        |
| Ambient temperature   | -10..60°C   |
| Storage temperature   | -20..70°C   |
| Protection class  | IP 55   |
| Certificates  | CE  |

| Motor | Nominal torque | Nominal speed (rpm) | A     |
|-------|----------------|---------------------|-------|
| AC    | 3 Nm           | 2 rpm               | 120/1 |
|       | 6 Nm           | 1 rpm               | 120/2 |
|       | 10 Nm          | 0.5 rpm             | 120/3 |
|       | 10 Nm          | 0.25 rpm            | 120/4 |
| DC    | 1 Nm           | 30 rpm              | 120/5 |
|       | 5 Nm           | 5 rpm               | 120/6 |
|       | 10 Nm          | 2 rpm               | 120/7 |

| Supply voltage    | B |
|-------------------|---|
| 24 VAC (+6/-15%)  | A |
| 115 VAC (+6/-15%) | B |
| 230 VAC (+6/-15%) | C |
| 12 VDC (+20/-15%) | D |
| 24 VDC (+20/-15%) | E |

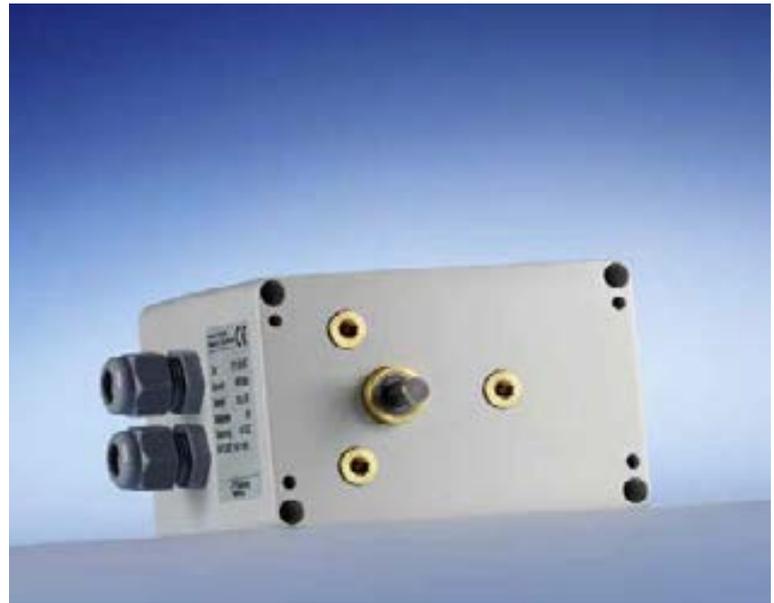
| Frequency (for AC-motors only) | C  |
|--------------------------------|----|
| 50 Hz                          | 50 |
| 60 Hz                          | 60 |

| Angle of rotation | D                |
|-------------------|------------------|
| max. 300°         | (please specify) |

| Potentiometer | E |
|---------------|---|
| without       | O |
| with          | P |

| Order code | A | B | C | D | E |
|------------|---|---|---|---|---|
| ST         | - | - | - | - | - |

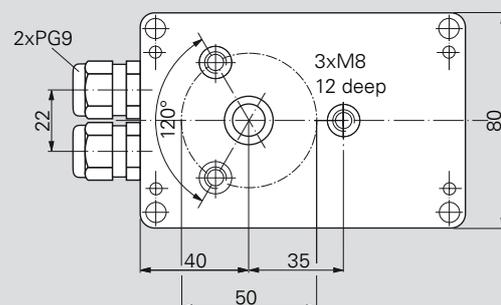
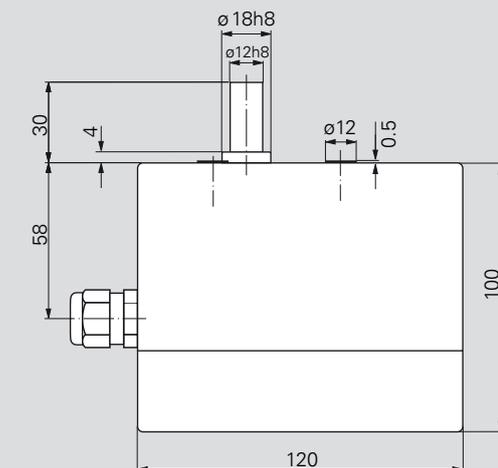
Customer-specific solutions available on request!



## Features

- Robust drive in stable plastic (ABS) housing
- Rotation angle limited via micro switch and adjustable cam discs
- Position acknowledgement via potentiometer (optional)
- Positioning drive mounting directly fixed to gear without straining the housing
- Maintenance-free

## Transmission ratios 75:1 to 1500:1

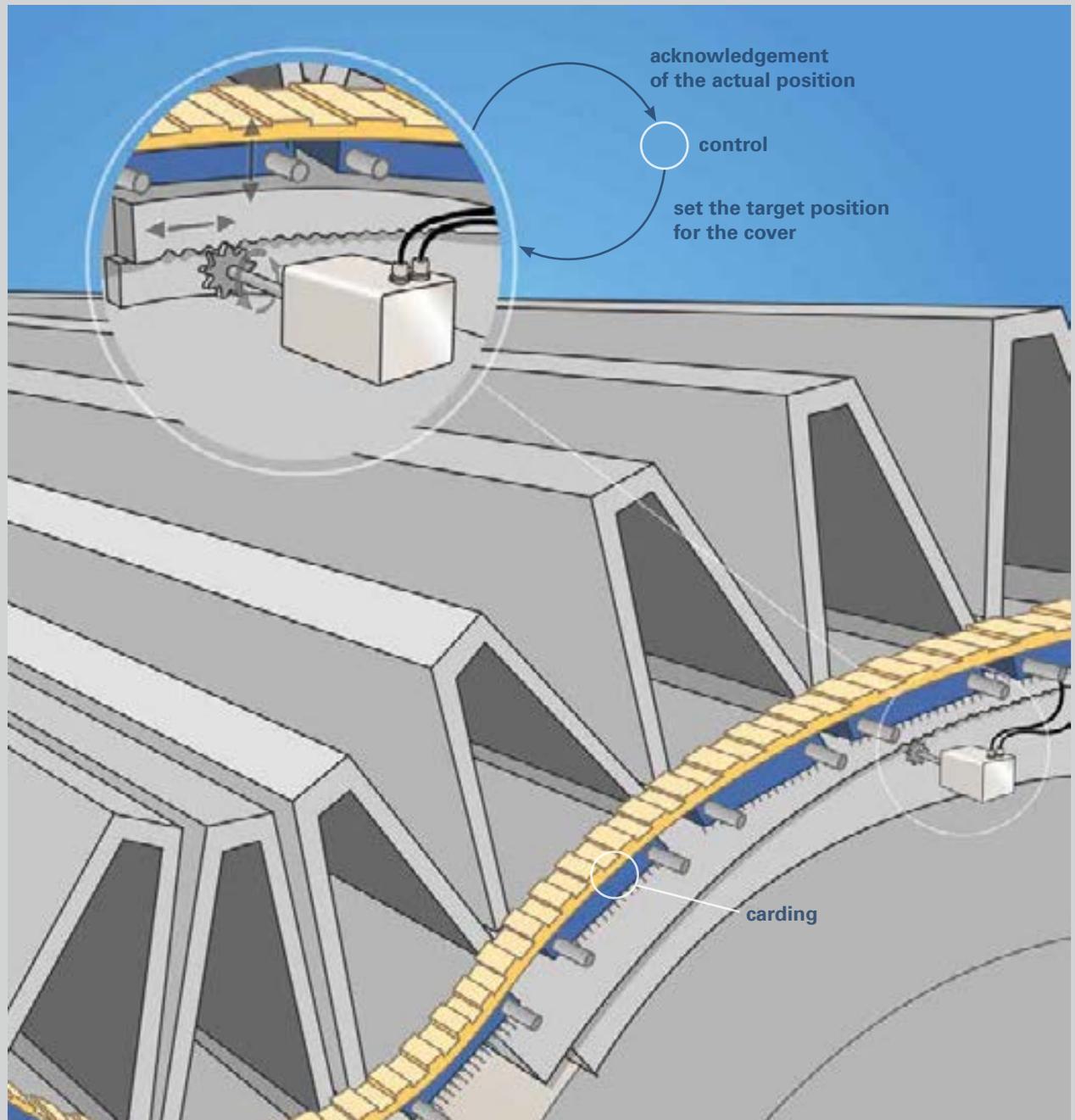


# POSITIONING IN TEXTILE MACHINES

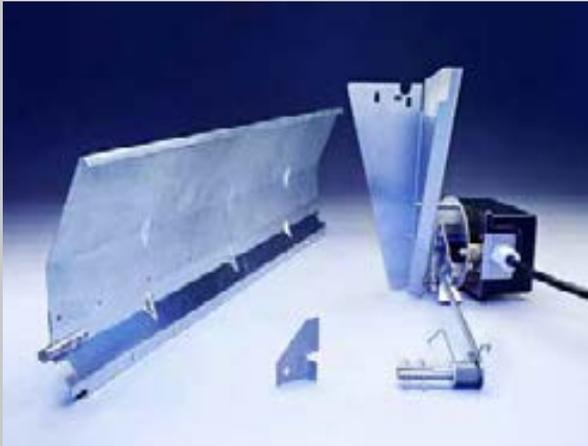
## POSITIONING OF COVERS IN TEXTILE MACHINES USING THE TR 130I

Carding is a stage in the process of spinning yarns (or manufacturing fleeces). The fibres are thoroughly cleaned and then processed to form a web on drums fitted with sets of teeth. The teeth and flexible hooks on these drums face in different directions and straighten the textile fibres so they run in parallel. The resulting web is then wound into card sliver, which is finally spun into yarn after stretching.

The distance between the cover of the carding machine on which the sets of teeth are mounted and the cotton fibres determines the quality of the fleece material produced. The robust and powerful TR 130i drive provides highly reliable adjustment of this distance.



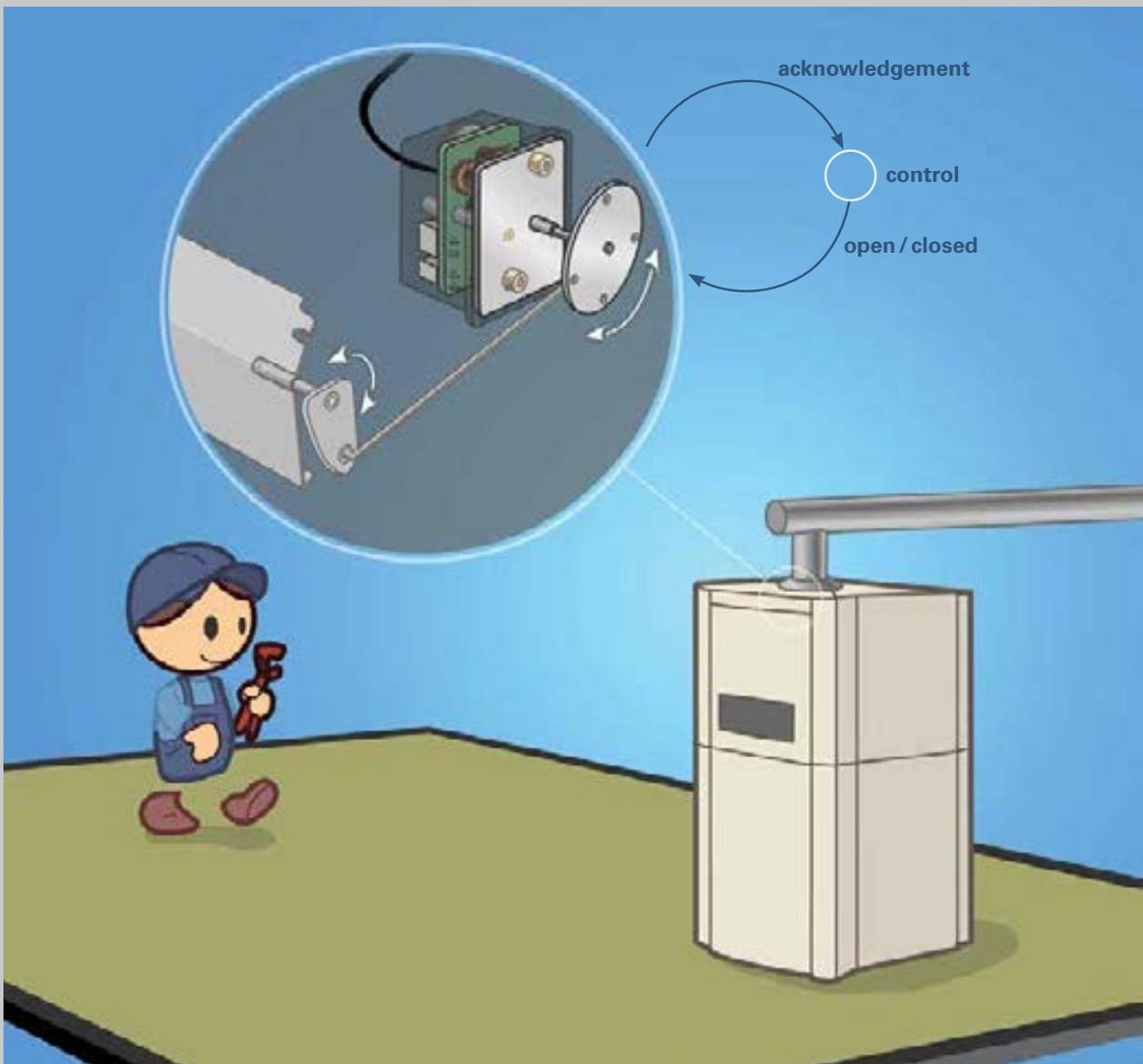
# DELIVERY OF THE COMPLETE DRIVE AND FLAP MODULE



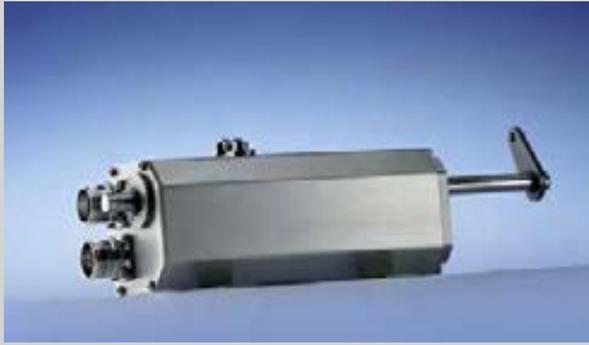
## EASY-TO-OPERATE FLUE GAS FLAP

During combustion, the flue gas damper is open so that the flue gas can escape via the chimney. Once combustion is complete, the flue gas damper closes again to ensure that no heat energy escapes into the environment via the exhaust duct. The drive of the complete module is powerful, reliable and suitable for all safety-relevant applications.

The use of plastic and brass gear wheels together with a plastic housing ensures low noise emissions and excellent value for money. If required, we can also deliver the neighbouring module, e.g. the appropriate metal flaps.

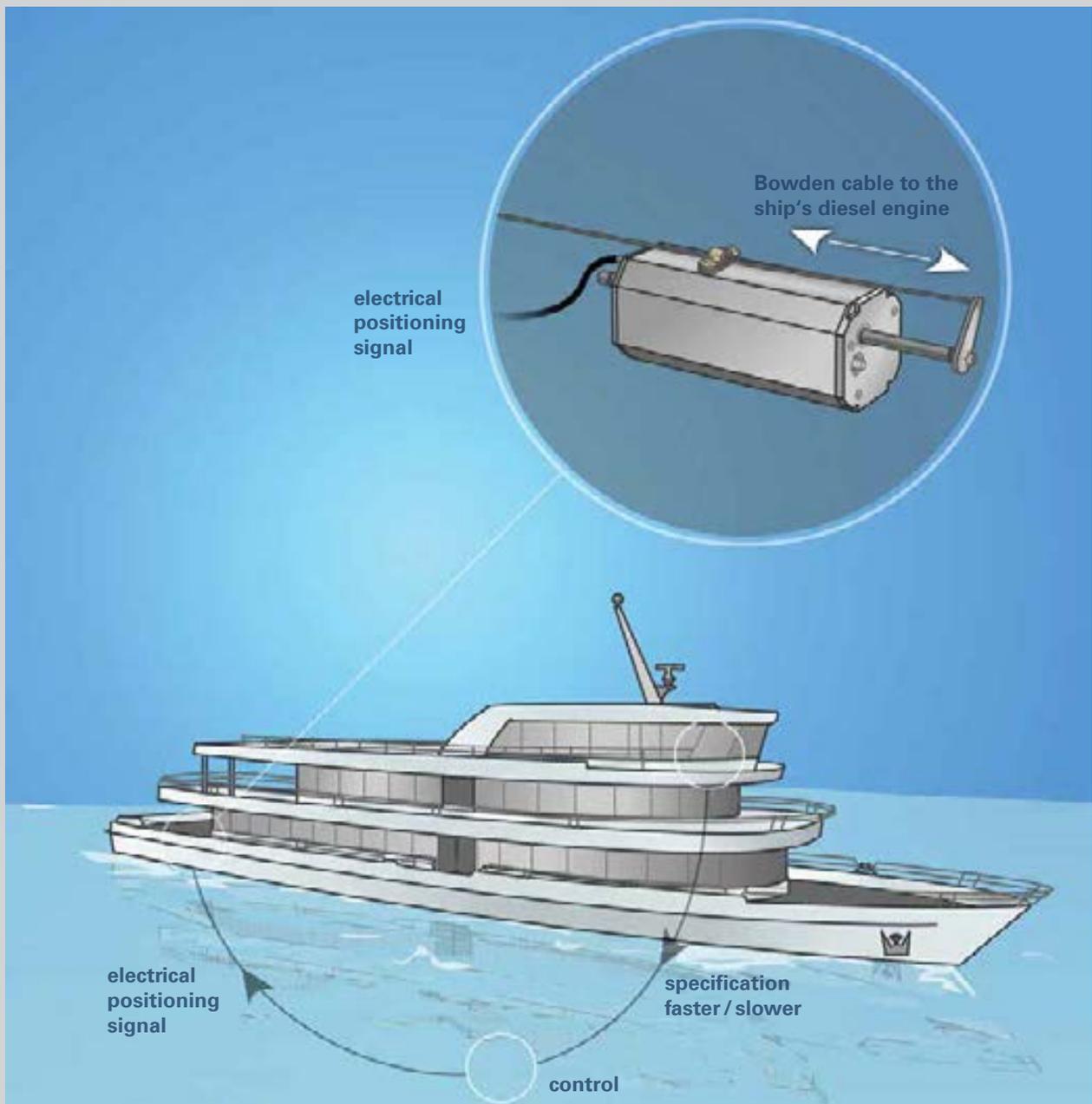


# LINEAR DRIVE IN METAL HOUSING



## SP 72 POSITIONING DRIVE FOR DIESEL DRIVE ENGINES

Located directly adjacent to the ship's diesel engine or to its reversing gear, the SP72 spindle drive offers infinitely variable control of the setting range and stroke. It replaces mechanical rope, chain or cable pulleys from the ship's rudder to the engine. Electrical cables run from one or more navigating bridges to the SP72 spindle drive. The actuator provides infinite adjustment of the speed of the ship's diesel engine. The SP72 is approved by German Lloyd, certified resistant to seawater (protection class IP65) and consequently already used as standard in many ship systems.



## AUTOMATED SAUNA INFUSION MILL TURNED BY A ROBUST DRIVE



Fig. 1: The patented infusion mill from EOS Saunatechnik GmbH, the market leader for sauna equipment, automates the infusion process

Modern sauna technology scores highly in the quality of its design and innovation. This is particularly true of the market leader for sauna technology, EOS Saunatechnik GmbH from Driedorf, Germany. Traditional sauna cabins are still available, of course, but the design aspirations are growing constantly. The sauna has broken out of the basement and is now a firm part of the bathroom and wellness landscape. For example, saunas in the wellness areas of country hotels or swimming pools have windows or glass doors that allow visitors to let their eyes wander freely over the picturesque landscape.

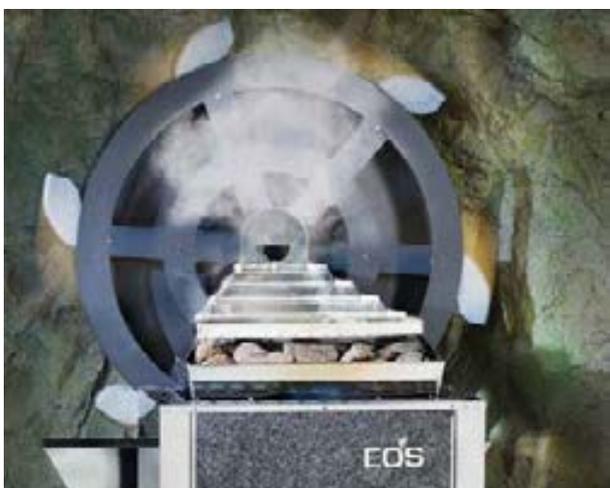


Fig. 2: Not just technically but also visually impressive: the infusion mill is an eye-catching centrepiece not only in the sauna but also at exhibitions

Finnish-style sauna cabins, in which the air is heated to 100°C, continue to be popular. However, sauna cabins that are heated to a temperature below 60°C with a steady supply of steam are in ever greater demand, because they are more gentle for an organism. And steam enriched with essential oils also benefits the respiratory system. This is the reason why some saunas contain large lumps of rock salt, which dissolve gradually in the humid air. Here, too, EOS Saunatechnik with its 100 employees and global sales organisation sets the standard with its modular salt tiles.

In most sauna cabins, a manual infusion is still an act of celebration. As water is poured from a wooden spoon over the scorching hot stones, the humidity increases to breathtaking effect. But who is prepared to stand up and take on this role in a large public sauna? Is it good etiquette to ask the other sauna guests beforehand to find out whether the majority wants an infusion at this particular moment? Joking apart, EOS Saunatechnik has developed and launched an impressive innovation to perform this task in the growing number of saunas in wellness areas but also for private individuals, who wish to offer their guests a special event.

The product in question is the patented „infusion mill“. This robust, hygienic wheel is fitted with a number of stainless steel scoops, which deliver a precise volume of water from a reservoir with a regulated level. As the wheel turns, the water is poured over special heated stones (olivin diabas). If necessary, it is even possible to adjust the intervals between the infusions. The result is an even infusion in perfect harmony with the size of the sauna.

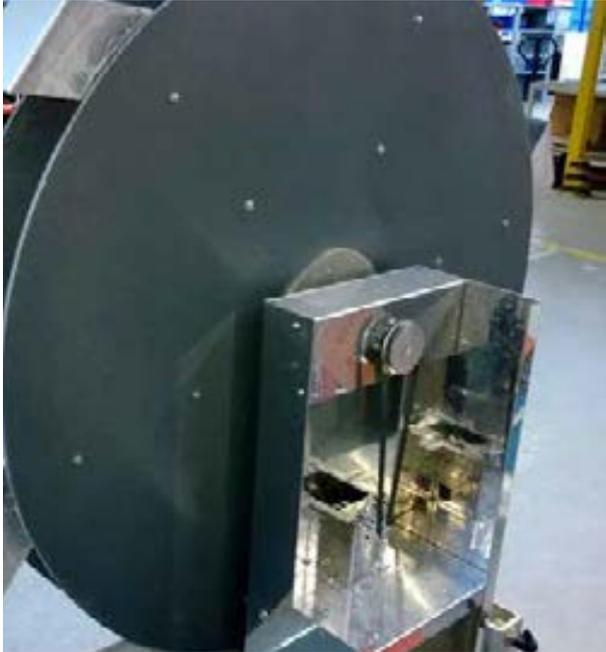


Fig. 3: The halstrup-walcher drive is located on the rear of the infusion mill

Actually, the mill wheel only needs to turn during infusion itself. However, experience has shown that sauna users and visitors to exhibitions and trade fairs find the experience even more attractive if it continues to move between the infusions. At these times, the mill wheel simply goes into reverse as soon as the infusion has been completed and thus remains in motion whenever the sauna is open.

The drive for the infusion mill has to cope with challenging conditions. Firstly, temperatures can climb as high as 80°C and the humidity levels are exceptional during the infusion. Secondly, infusion mills have to operate continuously every day in public saunas, often from 8 a.m. until after midnight. They must also generate a minimum of noise – after all who wants to visit a sauna where the hum of an electric motor drowns out the relaxing splish-splash of the infusion mill? Without a special lubricant for continuous maintenance-free operation and an exceptionally robust design, no drive could be expected to meet these requirements.

But there was more to come. In practice, the supplier of the drive (OEM specialist halstrup-walcher from Kirchzarten, Germany) repeatedly found that sauna visitors would move the wheel by hand – perhaps just for fun or perhaps to bring forward the time of the next infusion a little. Once this problem was identified, halstrup-walcher redesigned the drive and integrated a slip clutch. This made it possible to prevent damage to the drive caused by manual intervention and also stopped the drive belt from slipping off. In accordance with halstrup-walcher's standard practice, the new drive



Fig. 4: With a robust design and slip clutch, the drive is fully prepared to cope with harsh ambient conditions

was subjected to practical tests in order to guarantee that it functioned perfectly under real-world conditions. What trends can we expect in sauna technology over the next few years? The development specialists at EOS Saunatechnik take a relaxed view: the company is so close to the market that it is confident of remaining one of the major trendsetters in the future. And if there should be any tasks that require exceptional drive technology, they already know the perfect partner to consult on the matter.



Fig. 5: Drive solutions from halstrup-walcher offer impressive customer specific designs, optimum price-performance ratios, even for small batch sizes – and, last but not least, reliable and traceable supply quality

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